THE IMPACT OF PATIENT-CENTERED CARE ON PHYSICIAN JOB SATISFACTION AND PATIENT SATISFACTION: THE INFLUENCE OF PHYSICIAN AND PATIENT CHARACTERISTICS

BY

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DISSERTATION

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ABSTRACT

This dissertation examines the relationship between patient-centered care initiative (PCC) and physician job satisfaction and patient satisfaction by focusing on physician professional culture and patient culture. The research questions were drawn by the fact that PCC has widely been adopted in western hospitals and has recently been emphasized by healthcare researchers and how this adoption affects employee attitude and behaviors. This study was conducted in eight private hospitals located in Bangkok, Thailand.

Physicians play an important role in PCC implementation. Their communication with patients allows them to exchange information, to nurture the relationship and to make shared decisions. Their consultation quality and services will depend on job satisfaction which can affect the level of patient satisfaction. This study examines the compatibility between PCC, physician characteristics and patient characteristics in explaining physician job satisfaction and patient satisfaction.

In this study, the surveys were collected from 292 physicians and 1,027 patients in 66 hospital units from eight private and hospitals. For physician study, the results from multilevel analyses indicate that unit-level PCC (U-PCC) is not related to physician job satisfaction. Only physician collaboration and prior-PCC experience were positively related to job satisfaction. U-PCC did not have any effect on the relationship between physician characteristics and job satisfaction. For patient study, U-PCC is positively related patient satisfaction. Patient characteristics including patient involvement, existential value and functional value were

positively related to patient satisfaction. U-PCC did not moderate the relationship between patient characteristics and patient satisfaction.

This study has both research and practical implications. For research, the study provides a better understanding of the effect of PCC on physician job satisfaction and patient satisfaction. For practice, collaboration and prior-PCC experience were found to enhance physician job satisfaction. Physician collaboration, physician competency and physician-patient relationship are needed to be emphasized in the hospitals with patient-centered care initiatives.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Hospital business in Thailand has grown tremendously in the last decade as a result of income growth of healthcare consumers and an increase in popularity of Thai medical treatment among medical tourists (Cohen, 2008). Presently, there are 321 private hospitals in different parts of Thailand, with 98 of them located in the capital city of Bangkok. These hospitals have emerged in response to the increased patient needs which cannot be served at public hospitals that have limited resources. Thus, private hospitals were established to be more patient-focused than public hospitals. Patient satisfaction is considered to be one of the key determinants for healthcare quality which patients used to determine their decisions for future visits. With high competition in the healthcare industry, the hospitals have to adopt different approaches to attract healthcare consumers, such as transforming the hospitals into hotel-like hospitals and adopting a practice that can promote patient satisfaction, such as Patient-centered care (PCC).

PCC is a Western practice that is initiated by management in many hospitals to facilitate a collaboration between healthcare professionals and patients to ensure that treatment decisions are corresponding to patient needs by providing them with information and promoting their involvement in decision-making regarding their health and illness (IOM, 2001b, p.7; Pelzang, 2010; Robinson, 2008; Stewart et al., 2000). There are three research interests related to PCC: the effects of PCC on the quality of care; the relationship between PCC and patient satisfaction; and the relationship between PCC and employee job satisfaction (Bertakis and Azari, 2011; Aita

et al., 2005; Stewart et al., 2000; Kinnersley, 1996; Henbest and Stewart, 1990; Roter et al., 1987). For the research on employee job satisfaction, the majority of the researchers have emphasized the relationship between PCC and nurse satisfaction (Guantas et al., 2013; Tzeng et al., 2002). There is a limited amount of research that focuses on the impact of PCC on other healthcare professionals, particularly physicians who also play a significant role in implementing PCC in hospitals. Bertakis and Azari (2011) argued that physician-patient communication allows physicians to exchange information, to nurture the relationship, and to make shared decisions with patients. If physicians have low job satisfaction, they can provide lower consultation quality and services which, in turn, can lead to low patient satisfaction.

The purpose of this study was to examine different determinants of physician job satisfaction that have been derived from physician professional values and investigate the influence of PCC initiative on the relationship between these determinants and job satisfaction by drawing on the person-culture fit theory. Along the line of person-organization fit, person-culture fit was built around the idea that organizations have a culture that can either attract or drive away certain individuals (O'Reilly, Chatman and Caldwell, 1991). It is an interactional psychology perspective in which the interaction between individual and organizational culture can help in explaining individual attitudes and behaviors in a given situation. Thus, physician job satisfaction will depend on whether or not PCC is compatible with the values of the physician. In parallel with physician study, this research also examined the relationship between PCC and patient satisfaction, with the focus on patient values.

1.2 STATEMENT OF THE PROBLEM

This study examines the relationship between PCC, patient satisfaction and physician job satisfaction in Thailand by focusing on the compatibility between PCC components, physician background, and physician characteristics, as well as the compatibility between PCC components and patient characteristics.

1.3 PURPOSE OF THE STUDY

The purpose of this study is to examine the role of physician culture and patient culture in explaining the relationship between PCC, physician job satisfaction, and patient satisfaction. Specific objectives are:

1.3.1 To understand the relationship between physician characteristics and physician job satisfaction in a PCC setting.

1.3.2 To understand the relationship between patient characteristics and patient satisfaction in a PCC setting.

1.3.3 To propose recommendations for improving the effectiveness of PCC implementation.

1.4 RESEARCH QUESTIONS

1.4.1 What is the effect of PCC initiative on physician and patient satisfaction?

1.4.2 What is the role of PCC initiative in explaining the relationship between physician values and physician job satisfaction?

1.4.3 What is the role of PCC initiative in explaining the relationship between patient values and patient job satisfaction?

1.5 ORGANIZATION OF THE STUDY

Chapter 1 presents the introduction, statement of the problem, research questions, and significance of the study. Chapter 2 contains the review of PCC initiative, physician values, patient values, person-culture fit and the relationship between patient satisfaction and physician job satisfaction. The methodology and procedures that were used to gather data for this study are presented in Chapter 3. The results of analyses and findings that emerged from the study are contained in Chapter 4. Chapter 5 presents summaries of the study and findings, conclusions drawn from the findings, a discussion, and recommendations for further study.

CHAPTER 2

LITERATURE REVIEW

2.1 ORGANIZATIONAL CULTURE

Even though research has gained more interest in organizational culture, its definition is incongruent. The most commonly accepted definition is provided by Schein (1985) who has defined organizational culture as a pattern of basic assumptions that groups within organizations learned through solving problems of external adaptation and internal integration. Culture is manifested in three levels: artifacts, values, and assumptions. The most superficial level is artifacts, which refers to objects and behaviors that can be observed in organizations, such as dress code and the interactions between employees within organizations. It is difficult to decipher culture at this level without understanding their underlying assumptions. The deeper level of culture is called espoused values or morals and standards that guide peoples' beliefs and behaviors in organizations. This level of culture is derived from individuals or leaders who can impose their own values into the group; for example, policies and practices (Schein, 1985). Once a group adopts such values and experiences positive outcomes, the values become shared values. Most research studies on organizational culture have conceptualized culture at this level (Vandenberghe, 1999; Chatman, 1991; O'Reilly et al., 1991).

The deepest level of culture is basic assumptions or the underlying assumptions that are taken for granted but they help in explaining the way people believe and behave. We are not aware of the assumptions unless we spend more time to recollect them. Values will only be transformed into basic assumptions if a group has experienced a repetitive pattern of success.

According to a sociological perspective, culture is what organization possesses or has while an anthropological perspective believes that culture is a metaphor for organization or, in other words, culture is organization.

2.2 PATIENT-CENTERED CARE INITIATIVES

2.2.1 Definition

PCC is a clinical method that is introduced to hospitals by hospital leaders with the goal of improving healthcare quality and proving high patient satisfaction by focusing on the interaction between healthcare professionals and patients (Stewart et al, 2000). PCC does not have a specific set of guidelines on how individuals should behave, but PCC encourages healthcare professionals to pay more attention to patient concerns instead of their own interests. PCC initiative is at the early stage of transformation into cultural value, as it will require more time for organization members to learn and be exposed to the practice and share their positive experience and outcomes.

PCC is defined differently depending on disciplines, but all definitions are built around the relationship between healthcare providers and patients (Robinson et al, 2008; Wagner et al, 2005). According to Robinson et al. (2008), there are four perspectives providing PCC definitions: a public policy perspective, an economic perspective, a clinical perspective, and a patient perspective. From the public policy perspective, PCC is defined by the Institute of Medicine (IOM) as "health care that establishes a partnership among practitioners, patients, and their families (when appropriate) to ensure that decisions respect patient needs and preferences

and that patients have the education and support they need to make decisions and participate in their own care."

From an economic perspective, patients are considered as consumers or customers of healthcare (Guantas et al., 2013). PCC is a consumer-driven care that resembles the supply and demand model of care. Healthcare professionals supply service based upon the demands from patients. Patients are able to be informed of their healthcare choices that can balance cost, quality, and other service characteristics. This also depicts the relationship-focused aspect of a customer service culture. Healthcare professionals will need to develop a customer orientation similar to employees in other service industries (Hudak et al., 2003)

From the clinical practice perspective, PCC concerns the relationship between healthcare professionals and patients which focuses on patient feelings and experiences or illness from disease to the whole person both psychological and social factors to fully understand illness and to guide treatment and to pay greater attention to health promotion (Wagner et al., 2005; Stewart et al., 2000). This represents a substantial change from the traditional structures, roles, and operations of health care organizations from medical care that focuses only on the treatment of physical disease and the domination by the doctor. Walls between disciplines and departments are also removed, which can threaten deep-seated professional norms and values (Wagner et al., 2005, S9). From the patient perspective, PCC concerns characteristics such as respect, competence, patient involvement in decision-making, exploring patient needs, information sharing and communication. From these definitions, PCC is a shift in autonomy, communication and decision-making from physicians toward patients and the emphasis on patient involvement

and empowerment in making decision concerning their illnesses. Healthcare providers are responsible for educating patients about health information so that patients will be able to make appropriate decisions (Pelzang, 2010.)

PCC does not only focus on the relationship between a certain healthcare profession and patients; it also involves all unit staffs with multidisciplinary healthcare professionals, as most of the works are often completed by multidisciplinary teams (Jones et al., 1997; Robinson, 1991). Bleakly (2014) further argued that the interaction and communication between colleagues about patient care, as well as that between healthcare professionals and patients are very important in order to enhance the quality of consultation, the quality of healthcare, and safety. Stewart (2000) suggested that when a team desires to achieve PPC, team members should set the same goals of care for PCC. This is because if members aim for competing goals, the team will be drawn in different direction.

2.2.2 Patient-Centered Care Model

There are different healthcare models that emphasize patient needs and feelings in medical treatment. Among the early models was the Planetree model (Frampton and Charmel, 2009). This model emphasizes the interaction and relationship between healthcare professionals, patients, and communities, as well as among the practitioners. The model advocates partnerships between healthcare professionals, patients and families in healing. According to the model, if healthcare professionals focus on nutrition, activities, entertainment, spirituality and diversity, as well as the environment such as interior design, they will be able to achieve higher job satisfaction, faster recovery as well as higher patient satisfaction. In addition, the model has

empowered patients to access information through different sources, including informational packets, educational programs, and community health libraries.

Another well-known PCC model was formulated by Stewart et al. (2000) to include six PCC components. The first component explores both the disease and illness experience. It proposes that when diagnosing a disease, other than assessing patient history and performing physical examinations, healthcare professionals have to figure out patient perception of their diseases, how they experience the illness and how the illness affects their everyday functioning. The second component is to understand the patient as a whole person. It emphasizes acknowledging different aspects of a patient, such as history, family, and culture. In the third component, clinicians and patients can find common ground by determining the problem, the treatment, and their roles in the process together. The fourth component highlights the significance of maintaining disease prevention and health promotion. The fifth component highlights the relationship between clinicians and patients by encouraging clinicians to be more empathetic and compassionate during their contact with patients. The last component posits that healthcare professionals should be realistic about personal limitations and resources. Healthcare professionals will spend more time practicing PCC and their time available for each patient is limited. It is important to be realistic and determine which cases are more complicated and require more time than others. However, some researchers argue that this patient-centered method is still physician-centered, as it is used to guide the physicians about how to interact with patients.

2.2.3 The Role of Physician in PCC Initiatives

Recently, research has emphasized more about the significance of a physician's role in developing PCC initiative. For example, Henbest and Stewart (1990) found that patient-centeredness is correlated with physician-patient discussions about the reason for patient visits, physicians' understanding of the reason for coming, and knowing patients' reasons. Similarly, Aita et al (2005) examined the interaction between physicians and patients in PCC and found that the discourse in the medical examination room was influenced by certain factors, such as physician and patient characteristics, and community culture. In addition, the relationship between patients and physicians in term of communication was found to improve the quality of the care and patient outcomes (Bertakis and Azari, 20011; Aita et al., 2005; Stewart et al., 2000; Henbest and Stewart, 1990). For instance, Stewart et al. (2000) found a correlation between physician-patient communication and patient perception of finding common ground in which positive perceptions has led to better recovery from discomfort, better emotional health and lesser diagnostic tests and referrals. Bertakis and Azari (2011) examined determinants and outcomes of PCC and they found that the higher amount of patient-centered care, including interaction and communication between physician and patients, will help in lowering medical charges.

Physicians are also accountable for achieving patient satisfaction. Many studies found a positive relationship between physicians and patients was also associated with patient satisfaction (Kinnersley, 1996; Roter et al., 1987). Roter et al. (1989) found a positive relationship between information-giving and counseling characteristic of doctor and patient

satisfaction across the globe. In contrast, Cecil and Killeen (1997) found a negative relationship between patient satisfaction and a doctor's initiating control statement.

2.2.4 Patient-Centered Care in Thailand

In the Thai healthcare system, there are different types of healthcare providers in which patients have the ability to make their own decision whether to go to a public hospital, a private hospital or a private clinic. The distinctions between public and private hospitals resemble those between public and private organization in terms of their environment, organizational transactions, internal structure, and goals (Rainey and Bozeman, 2000; Perry and Rainey, 1988; Rainey, Backoff and Levine, 1976). Researchers argue that public organizations do not involve themselves in the economic market as much because their resources only depend on political institutions and budget allocation, while private organizations must obtain their resources through the economic market which has forced them to operate more efficiently and effectively. As a result, there is no incentive for public organizations to operate effectively or achieve high performance. They are influenced and coerced by related government agencies. Their organizational structure is based on a hierarchy and has less flexibility than private organizations. They also have multiple goals which are vague and often in conflict with one another.

Public hospitals are operated under various governmental units and public organizations, including the Ministry of Public Health, the Ministry of Education, and the Red Cross. The majority of patients at public hospitals have low income because healthcare costs are lower here than private hospitals. They accept the universal healthcare programs, including the civil service welfare system, Social Security, and the universal coverage scheme or gold card. There are

limited resources in terms of the number of healthcare professionals and hospital care equipment to serve the number of patients, which has increased every year. Patients have to wait a long time to receive services from public hospitals. Even though PCC is part of the core values in public hospitals, it is difficult to implement it due to the fact that physicians in public hospitals are responsible for approximately 40-50 patients per day. The limited time they have with each patient does not permit physicians to practice PPC. Thus, PCC is not widely adopted or implemented in Thai public hospitals.

On the other hand, private hospitals have emerged as a result of inadequate healthcare services from public hospitals and the demand for improvements to the quality of healthcare (Pongsupap and Van Lerberghe, 2006). Private hospital business in Thailand has expanded tremendously in the past decades in response to the increasing income of healthcare consumers and the growth in the number of foreigners who come to Thailand for medical tourism and treatment. Most of the major private hospitals are located in Bangkok, creating high competition among themselves, as well as competition with public hospitals that have evening clinics for patients with higher income. Due to high competition, they have to respond more to patient needs. Thus, they recruit more part-time physicians who already work full-time at public hospitals. Some hospitals respond to the high competition by establishing specialized centers and new hospital branding to target different patient groups based on income level. There are hospitals whose target patients are upper class, upper middle class and middle class people. Because of high competition and the fact that the majority of people have healthcare coverage, many hospitals that target upper middle class and middle class people began to participate in the

Social Security Scheme (SSS) and the Universal Coverage Scheme (USC) in order to motivate their target groups to choose their services.

Since patients are considered to be healthcare consumers and can decide where to receive better healthcare services, hospitals try to attract customers by increasing patient satisfaction, which is one of the healthcare quality indicators (Kleefstra et al., 2012). Many private hospitals implemented PCC policy; however, the level of PCC adoption depends on individual healthcare professionals and different hospitals' target patient groups. Hospitals that target higher income people tend to be more responsive and patient-centered than hospitals that target lower income people because there are inducements for the private healthcare providers to meet higher patient expectation since this group of patients pays higher healthcare costs for the better-quality services. Hospitals that target middle class people tend to accept SSS and USC which will increase the number of patients, thereby resulting in healthcare professionals spending less time practicing PCC.

There are few research studies on patient-centered care in Thailand. Pongsupap and Van Lerberghe (2006) conducted an observational study on the differences between healthcare provider behaviors, including the degree of patient centeredness between the public and private sectors in Thailand. In the study, patient centeredness was measured according to responses to open-ended questions pertaining to information requests, empathy, and anxiety relief based on Henbest and Fehrsen (1992). They found only private clinics to be significantly more patient-centered than public and private hospitals.

2.3 PHYSICIAN AND PATIENT VALUES IN THAILAND

Traditional Thai medical care depended on healthcare professionals in making decisions because they are trained and specialized in these areas. The relationship between Thai physicians and patients portrays a paternalistic model in which physicians behave like parents. Physicians will determine patients' diseases and illnesses and a course of action to taken in order to alleviate pains and illness (Emanuel and Emanuel, 1992). They will present the methods in a way that persuades patients to agree on the actions. There are many factors that made the paternalistic model less applicable and acceptable in today's medical practices. First, patient culture has changed. In the past, people were less educated about diseases and illnesses. With the development of advanced technology such as the internet, patients become healthcare consumers who are able to access relevant information about their illness and treatment by themselves. They are more likely to discuss their concerns with physicians and participate more in the decision-making process. Patients also become more selective in determining which hospitals and physicians they would go to when they require medical treatments. They also expect these healthcare professionals to treat them with empathy, to have a better physician and patient relationship, and to be more patient-centered. In addition, patients did not have courage to file lawsuits against physicians in the past because filing a lawsuit was a long process and there was no guarantee that they would win the case. Nowadays, there has been an increase in the number of lawsuits against physicians for malpractice. Third, the use of social media has become a popular source for patients to publicly complain when they experience medical malpractice from healthcare providers.

Subsequently, Thai physicians are more cautious when attempting to make decisions concerning patients' health and illnesses, as implementing the paternalistic model is considered a perilous practice that can result in future lawsuits. This has led to a change in physician culture from being paternalistic toward being more patient-focused. Some physicians have adopted a holistic approach to medicine which is a method that considers patients as a whole person and their physical, mental and spiritual components are interconnected. By recognizing all the health components, physicians can treat patients more effectively. In addition, Thai medical schools have recently introduced different activities that emphasize the importance of understanding patient needs by encouraging better communication among medical students and patients. For example, a role play between medical students and patients reflects what will actually happen in a physician-patient relationship (Pitanupong and Vitayanont, 2009). By doing this, students will understand their needs and will be motivated to pursue their career forward.

H1a: The extent of patient-centered care initiatives in a hospital unit will be positively related to physician job satisfaction.

H1b: The extent of patient-centered care initiatives in a hospital unit will be positively related to patient satisfaction.

2.4 PERSON-CULTURE FIT

2.4.1 Definition

In the study of person-situation fit, researchers attempt to understand individuals' attitudes and behaviors in organizations based on two approaches: individual difference approach and situational approach. Individual difference approach attempts to understand people's

behavior by focusing on their values and characteristics while situational approach posits that characteristics of a situation are the best predictors of individual behavior. However, interactional perspective suggests that both individual and situational characteristics have some impacts on individual behaviors in organizations and individuals choose their situations and will outperform in situations that are suitable to themselves (Chatman, 1989; Lewin, 1951).

Researchers have explored different types of fits: person-vocation fit, person-job fit, person-group fit, person-supervisor fit, and person-organization fit with the majority of research focused on the latter category (Kristoff-Brown, Zimmerman and Johnson, 2005). By definition, person-organization fit (P-O fit) is defined as the compatibility between individuals and the overall organization; however, half of the P-O fit studies operationalized it as the value congruence between individuals and organizations. Individual values are beliefs that guide individuals' decisions and behaviors including their preferences on one thing versus another, while organizational values refer to value systems that provide organizational members with some justification as to what are appropriate behaviors in organizations (Cable and Edward, 2004; Chatman, 1989; Schein, 1984; Rokeach, 1973). Thus, person-culture fit is defined as the compatibility between individual values and the organizational value system (Elfenbein and O'Reilly, 2007; Caldwell and O'Reilly, 1990; O'Reilly, Chatman and Caldwell; 1991; Wilkins and Ouchi, 1983).

Based on the study by Cable and Edward (2004), two types of culture fit can be inferred from the study of person-environment fit, including complementary fit and supplementary fit. Complementary fit occurs when organizations or employees can provide what the other desires.

For example, employees possess some skills that organizations value or organizations provide employees with something that is of value to them, such as rewards and positive work conditions. On the other hand, supplementary fit can occur when employees' values are parallel with organizations' values and organizations prefer individuals whose values resembles those possessed by their current employees. This study is based on the supplementary fit tradition in which the congruence between physician values and organizational values affect physician attitudes and behaviors.

Along the line of person-situation fit research, both situational characteristics and consumers' differences can provide an explanation about consumers' attitudes and behaviors (Belk, 1975). Thus, by examining consumers' values simultaneously with organizational values, one can understand consumers' attitudes and behaviors toward organizations where they intend to get service from (i.e. consumers will choose service organizations that possess similar values).

2.4.2 Outcomes of Person-Culture Fit

There have been research studies that have focused on the relationship between person-culture fit and individual affective outcomes such as commitment, turnover, extra-role behavior and job satisfaction (O'Reilly et al., 1991). This study examines the effect of PCC on job satisfaction and consumer satisfaction.

2.4.2.1 Job Satisfaction

Typically, job satisfaction is defined as an employee's affective reactions to a job based on comparing desired outcomes with actual outcomes (Cranny, Smith, and Stone, 1992). Job

satisfaction is generally recognized as a construct that involves both intrinsic and extrinsic job aspects (Howard and Frick. 1996). Porter and Steers (1973) argued that employees will be more or less satisfied with their jobs depending on the level of met work expectations which comprises of an expectation of higher pay, promotion, or autonomy. The importance of these preferences varies across individuals, but when the unmet expectations become large, there is less job satisfaction and a high chance of withdrawal behavior (Pearson, 1991). Job satisfaction among healthcare professionals is an essential factor for job performance in term of improving patient outcomes which will ultimately improve patient experiences, satisfaction and organizational performance (Shannon, 2013; Devoe et al., 2007; DiMatteo et al., 1993). On the other hand, if healthcare professionals are dissatisfied with their jobs, they often have one of the burnout symptoms that could lead to negligence and malpractice at work, thereby resulting in poor patient outcomes (Anagnostopoulos et al., 2012). Job dissatisfaction can cause high turnover among healthcare professionals (Tzeng, 2002). Thus, it is vital to recognize factors that could lead to physician job satisfaction.

There are different models that explain the relationship between person-culture fit and job satisfaction, including the need fulfillment model, the discrepancy model, and the value attainment model (Kasimati, 2011). The need fulfillment theory suggests that individuals will be satisfied when job characteristics have fulfilled their needs (Karr, 1999), while the discrepancy model proposes that the congruence between individual expectations and the actual outcomes can led to job satisfaction (Wanous et al., 1992). The value attainment model posits that when an individual perceives that the job has fulfilled their work values, they will be more satisfied. These models demonstrate the effect of the congruence between individual characteristics and

organizational context with respect to job satisfaction. In addition, research has found that when a person's culture fits with an organization's culture, they are likely to be more satisfied with their jobs and stay with their organizations (Testa et al, 2003; vandenberghe, 1999; O'Reilly et al., 1991). One the other hand, a misfit between individual and organizational values can lead to job dissatisfaction (Wheeler et al., 2007). In healthcare, Stark et al. (2014) surveyed U.S. physicians nationwide about cultural fit with organizational culture and found that PCC is one of the cultural attributes that are important to physician job satisfaction. Likewise, Gutierrez, Candela and Carver (2012) found that person-organizational fit, measured as organizational values, is found to be positively related to global job satisfaction.

2.4.2.2 Patient Satisfaction

Based on research about consumer satisfaction, consumer satisfaction or dissatisfaction is defined as consumer responsiveness to their perceived inconsistency between prior expectations and the actual performance or standard of the product received after the consumption (Tse and Wilton 1988: 204; Cadott et al., 1987; Day, 1984; Oliver, 1980). Lou and Homburg (2007) provided four types of consumer outcomes. The first type is consumer-related outcomes. They posit that consumer satisfaction will determine consumers' behaviors, such as loyalty, intention to repurchase, and complaint behavior. The second type of outcomes concerns the efficiency in which customer satisfaction is positively correlated with the ratio of sales per employee (Anderson, Fornell and Rust, 1997). The third type is employee related outcomes, such as employee satisfaction and a firm's attraction to future employees. The fourth type is performance-outcome.

There has been a significant amount of research that has examined the relationship between consumer satisfaction and a firm's performance, including return on investment and return on assets (Rust et al., 2002; Anderson et al., 1994). As a result, consumer satisfaction has become one of the important aspects for businesses that focus on providing services for customers, including hotel and hospital businesses. In the healthcare industry, consumer or patient satisfaction has been used as one of the determinants of the quality of healthcare (Centers for Medicare and Medicaid Services, 2015). In addition, the value congruence between organizations and their consumers can also lead to consumer satisfaction because consumers feel that their needs and expectations are being valued and fulfilled.

2.5 PHYSICIAN CHARACTERISTICS

Since the congruence between individuals and organizations can affect job satisfaction, it is important to focus on individual physician characteristics, which can be understood by examining physician values. Meyer and Tucker (1992) proposed a set of understandings or values that are shared among physicians. These include job autonomy, relationship among physicians, belief in science, and humanitarian ideals (Meyer and Tucker, 1992).
This study focused on two of the values from Meyer and Tucker (1992) which were found to be related to PCC and job satisfaction. These two values consist of job autonomy and collaboration among physicians (Mazurenko and Menachemi, 2012; Steven et al., 1992).

2.5.1 Need for Autonomy

Autonomy can be understood at two levels, including individual-level autonomy and occupational level autonomy (Engel, 1969). According to Engel (1969), occupational level

autonomy refers to the control possessed by an occupational group over decision-making and the ability to direct activities related to their professions while individual-level autonomy refers to self-control over decision-making and activities in his or her workplace. There are different models that help explain the relationship between autonomy and job satisfaction. First, the need models including basic needs and need fulfillment, which provide three basic psychological needs that allow individuals to function more effectively (Deci and Ryan, 2000). These needs include needs for autonomy, competence, and relatedness. When these needs are fulfilled, individuals will be more satisfied with their jobs.

Second, the job characteristic model (JCM) offers five job characteristics that affect employee attitudes and behaviors, including autonomy, skill variety, task identity, task significance and job feedback (Hackman and Oldham, 1975). JCM posits that these job characteristics can affect work outcomes through different psychological states, including meaningfulness of work, responsibility for work outcomes, and knowledge of results of work. Job autonomy affects job satisfaction through the individuals' psychological state of being responsible for their own jobs. Individuals will be satisfied with their jobs when they feel accountable for the results of their work. Thus, they will be more or less satisfied depending on how they perceive their job autonomy.

Physician autonomy is an essential aspect that affects physician job satisfaction and dissatisfaction (Konrad et al., 1999; Steven et al., 1992). Emanuel and Pearson (2012) defined physician autonomy as a physician's self-determination on how they practice and deliver care to patients with the goal of promoting patient well-being (p.367). Physicians used to have

autonomy or power to determine patient treatment, charges and all aspects that concern physicians' practices (Emanuel and Pearson, 2012; Meyer and Tucker, 1992). Many studies found that physicians who perceived themselves as having job autonomy and a certain amount of responsibility will have a higher level of job satisfaction (Schulz and Schulz, 1998; Sharma, 2014).

However, nowadays physician autonomy is undermined because physicians are considered as employees of hospitals, particularly in bureaucratic hospitals; they will have to conform to hospital rules and standards (Steven et al., 1992). It is difficult to change physician beliefs, particularly in older physicians who still prefer the old ways of running a practice and are less likely to give up their autonomy to patients (Murray et al., 2007). Based on person-culture fit theory, physicians who prefer job autonomy are not compatible with PCC initiatives resulting in negative job satisfaction. When hospital rules and standards limited physicians' autonomy, those with high need for autonomy will have a lower level of job satisfaction.

In terms of PCC initiatives, decision-making power is shared between physicians and patients. They will work together to find a common ground and determine treatments that are in patients' best interests. In units with high level PCC, all physicians will encourage patient participation and become less dominated during physician-patient discussions (Epstein and Street, 2011.) Physicians will be more informative, empathetic toward patients and hold less authority in treatment decisions. This allows patients to gain more autonomy regarding the decision on health and illness, but has reduced job autonomy in physician who used to have sole decisions over treatments. Physicians in a low PCC unit are assumed to provide limited

information to patients and occasionally control over the treatment decisions. Thus, in a high PCC setting, the need for autonomy will have a stronger negative effect on job satisfaction in a PCC setting than units with a lower PCC.

H2a: Need for job autonomy will be negatively related to physician job satisfaction.

H2b: The relationship between physician job autonomy and job satisfaction will be more negative the greater the extent of PCC initiatives in a hospital unit.

2.5.2 Physician Collaboration

Collaboration refers to a situation when individuals with different perspectives or professionals would come together to explore their differences in order to find all possible solutions that are beyond each individuals' ideas (Gray, 1989). In the healthcare context, Baggs and Ryan (1990) referred to collaboration as a situation where interdisciplinary healthcare professionals work cooperatively, exchange ideas, share and account for decision-making and problem-solving responsibility. When healthcare professionals collaborate with one another, they can gain different professional perspectives, skills, and knowledge which can lead to better and creative solutions. As a result, they will be able to respond better to patient needs that can lead to improvement in the quality of care, better patient outcomes, higher patient and healthcare professional satisfaction, and higher physician morale (Lindeke et al., 2005; Vazirani et al., 2005). Nowadays, the nature of a physician's practice has changed to allow physicians to collaborate more with each other (Becker et al., 1961).

Although researchers found that collaboration between nurses and physicians has a positive impact on job satisfaction (Chang et al., 2009; Konrad et al., 2004; Rosenstein, 2002; Baggs and Ryan, 1990), Meyer and Tucker (1992) argued that physicians will relate best with other physicians because they spend time together in school and training. This bonding process has shaped how physicians relate with one another. Physicians also believe that their profession is superior to other professions because of the competitive selection process for future physicians and the financial aspects of physicians (Meyer and Tucker, 1992; Freidson, 1970). Thus, it is assumed that when collaboration occurs within their same profession, physicians will have a higher level of satisfaction.

In PCC initiative, collaboration among healthcare professionals is promoted to ensure that the decisions regarding patient treatments correspond to patient needs. Physicians who value collaboration will be compatible with PCC initiative, resulting in positive job satisfaction. In hospital units with high PCC, physicians are expected to work more cooperatively with one another, frequently exchange ideas, share and be highly accountable for decision-making and problem-solving responsibility, while physicians in hospital units with low PCC have a lower level of cooperation with their colleagues and patients. As a result, the relationship between collaboration and job satisfaction will be even stronger in high-level PCC initiative.

H3a: Physician collaboration will be positively related to physician job satisfaction.

H3b: The relationship between physician collaboration and job satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.

2.5.3 Physician Prior PCC Experience

Medical schools have recognized the importance of the relationship between physicians and patients and began to reinforce it in their curriculums (Cottingham et al., 2008). Their goals are to have their graduates be compassionate, empathetic, and respectful to patient needs and preferences. After graduation, they will be able to deliver effective patient-centered care to patients. According to Greenwood (1987), physicians learn and share values while they attend formal institutions, including medical schools, hospitals, and physician associations. By consistently enforcing PCC in medical school curriculum, students will learn to adjust to the curriculum and develop PCC value in order to prepare themselves for their medical training (Becker et al., 1961). PCC value will be retained after graduation. How much value is retained will depend on students' positive experience with PCC. Based on person-culture fit, when physicians have PCC value that were developed either through medical education or training, their value is compatible with hospital's value, resulting in positive physician job satisfaction.

In hospital units with high PCC initiative, all physicians share PCC value. They are more empathetic and collaborative with patients and other healthcare professionals which can lead to a better physician-patient relationship. They respect patients and their families' needs and preferences and allow patients to participate in the decision-making process regarding their health and illness. Physicians in hospital units with low PCC initiative will have a vague understanding about PCC; thus, they will be less likely to share PCC value. Physicians will provide limited information to patients and sometimes use their personal judgement in making treatment decisions. Relationships between physicians, patients and other healthcare professionals are less likely to occur because there is a lower level of collaboration.

H4a: Physician prior PCC experience will be positively related to physician job satisfaction.

H4b: The relationship between physician prior PCC experience and job satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.

2.6 PATIENT CHARACTERISTICS

Research studies have found that different groups of patients share different beliefs and expectations in terms of a physician-patient relationship and communication, shared decision-making, and patient involvement (Ullrich, Hauer, and Farin, 2014; Lakshmi and Ganesan, 2013; Pieterse et al., 2013; Whitt et al., 2012; Roger et al., 2006). For example, some patients prefer to make decisions concerning their health and treatment by themselves, while others do not want to make their own decisions. The latter group feels uncertainty in making their own decisions because they need to weigh treatment benefits with potential harm that could affect their lifelong health (Pieterse et al., 2013). Three patient value characteristics were proposed in this study, which include patient involvement, existential value, and functional value.

2.6.1 Patient Involvement

Patients are different with respect to the degree of which they want to be involved in physician-patient discussions. Since patients are considered as healthcare consumers, the concept of patient involvement is derived from the consumer involvement context. According to research about consumer involvement, there are different definitions of involvement (Bruwer et al., 2013; Schiffman et al., 2010). It has been defined as a state of mind that motivates or drives consumer to make their decisions about their product consumption (Bruwer et al., 2013). The

degree of involvement varies from high to low involvement. Higher-involved consumers require more information and prefer to learn more, while lower involved consumers will exhibit low interest, and spend less time in discussing their illness and treatment.

In this study, patient involvement is defined based on Zaichkowsky (1985)'s definition of involvement as the degree of patient relevance to medical treatment. Higher-involved patients require more information and prefer to learn more about their health and illness and their treatment through participation and communication with healthcare providers, while lower involved patients exhibit low interest in participating in discussions and decisions regarding their own healthcare and treatment. Preferences to be involve in the decision-making process were found to depend on factors such as age, gender, education, and race (Levinson, 2004). Many studies found patient involvement in the decision-making process to be positively related to patient satisfaction (Little et al., 2001; Krupat et al., 2000; Benbassat, Pilpel and Tidhar, 1998). For example, Little et al., (2001) found that physician-patient communication and partnership in terms of involving patients in decision-making was positively related to patient satisfaction. Based on the person-culture fit theory, patient satisfaction occurs when patients and hospitals have values that are compatible, in this case, patient involvement.

In a hospital with PCC initiatives, patients are motivated to participate in physician-patient discussions. Physicians welcome questions and concerns from patients and are responsive to patient needs. More information regarding their health and illness will be given to patients, thereby allowing them to be able to make their own decision. In a unit with high PCC, the already mentioned PCC practices will be highly implemented with total agreement from

physicians. In a unit with low PCC initiative, physicians may provide limited information to patients and do not give patients enough time to ask questions during the consultation. Thus, the positive relationship between patient involvement and patient satisfaction will be stronger in PCC setting.

H5a: Patient involvement will be positively related to patient satisfaction.

H5b: The relationship between patient involvement and patient satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.

2.6.2 Functional and Existential Values

The value system of a consumption framework (Floch, 1988) suggests types of consumer values associated with services in a hypermarket in terms of semiotic square that is to include utilitarian values and existential values and their semantic opposition, i.e. non utilitarian and non-existential values. According to Floch (1988), services are utilitarian or functional only when they are mainly served for a specific function. The functional values will be formed though the process of achieving service effectiveness. Consumers will utilize an object only if it serves a specific function and the effectiveness is achieved if the function is fulfilled. For example, patients will search for more information about their diseases in order to ensure the effectiveness of the services provided by healthcare professionals. They will prefer a competent physician over a physician-patient relationship. Individuals with existential values will utilize services based on relationship with the service rather than functions of the service. For example, patients will go to the hospitals because of their relationship with physicians or nurses. A contradiction

to existential value is non existential value, in which consumers will use their rational and would make a calculation before utilizing such services.

Patients can have different values at the same time, depending on the situation. These values will be high or low depending on the situation. For example, patients can be more functional in one situation in which he or she prefers more competent physicians who can provide more information on their health and illness. At the same time, they prefer to better their interpersonal relationships with physicians. If the physicians do not have good relationship with patients, patients may decide to see other physicians with lower competency but can relate more with patients.

In hospitals with PCC initiative, communication between patient and physicians is promoted which enhancing their relationship and allowing patients to see the physician ability and competency through discussion. By cooperating with one another, physicians will be able to understand patient needs and preferences which can improve the way physicians treat their patients, thereby resulting in better patient outcomes. Since patients with functional value desire effectiveness, they will be more satisfied in PCC initiative because it helps to serve their functional purpose. Patients with existential value will have a high level of satisfaction because PCC initiative promotes the relationship between physicians and patients, which is compatible with what they value.

In hospital units with high PCC initiative, all physicians understood and practice PCC. They are prepared to respond to any questions and concerns from patients allowing them to see

physician competency and ability. They will provide information regarding patients' health and illness, as well as different treatment alternatives to ensure that patients have all the information needed to make a decision. Communication and relationships between physicians and patients are highly valued. Physicians will take into account patient history, feelings, and family when treating the patients. In a unit with low PCC initiative, physicians do not share the idea of PCC. They will provide limited information to patients which can create a belief that physicians are less competent. Relationship and communication between physicians and patients are less valued. Based on the person-culture fit theory, functional and existential values in patients will be compatible with PCC initiative and that patients with a high level of both existential value and functional value will have a higher level of patient satisfaction in a PCC setting. The relationship will also be stronger in units with a higher level of PCC initiative.

H6a: Functional value will be positively related to patient satisfaction.

H6b: Existential value will be positively related to patient satisfaction.

H6c: The relationship between patient functional value and patient satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.

H6d: The relationship between patient existential value and patient satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.

CHAPTER 3

METHODOLOGY

Understanding physician and patient attitudes will help hospitals gain a competitive edge. This study investigates whether the matches between physician professional values and patient values with organizational values affects their satisfaction. This chapter first sets forth the conceptual framework for the study and introduces the research questions. Then, the following sections present research design, instrumentation, population, sample and data collection, data collection protocol, variables, and the methodology.

3.1 CONCEPTUAL FRAMEWORK

Figure 1 depicts the conceptual framework for the study and how patient-centered care, professional values, and patient values affect physician job satisfaction and patient satisfaction. The study investigates whether professional values and patient types and values contribute to explanations of physician job satisfaction and patient satisfaction.

3.2 POPULATION AND SAMPLE

Data were collected from physicians and outpatients in 66 hospital units from eight private hospitals located in Bangkok, Thailand. The hospital units include They include allergy clinics, dermatology clinics, diabetes clinics, ear, nose and throat clinics, emergency clinics, eye clinics, heart clinics, internal medicine clinics, liver and digestive centers, neurology centers, medical check-up clinics, oncology centers, pediatrics, physical therapy clinics, pulmonary centers, radiology centers, orthopedic centers, surgery clinics, urology clinics, wellness centers,

and women's health centers. Both physician and patient samples were based on an opportunity sample. The sample sizes included 301 physicians and 1,044 patients. The response rate for the physicians was 33.82 percent, while the response rate for patients was 58.65 percent.

3.3 MEASUREMENT

3.3.1 Patient-Centered Care

The measure of PCC is adopted from Stewarts (2014)'s patient perception of patient-centeredness because measuring PCC from patients' point of view is more accurate and less biased than measuring it from physicians' perception. The Cronbach alpha was .74. The measure includes 14 items based on patient agreement with the statements, such as 'your main problem has been discussed today,' 'your physician has explained the problem to you,' and 'you agree with the physician's opinion about the problem.' The responses are based on a 5-point Likert scale which ranges from 1 (strongly disagree) to 5 (strongly agree).

3.3.2 Physician Prior PCC Experience

Physician prior PCC experience is measured using five items based on the PCC definition provided by the IOM (2001). The examples of the items include 'attempting to understand patient needs and preferences' and 'encouraging patients to make decisions regarding their health and illness,' The responses are based on a 5-point Likert scale which ranges from 1 (Never) to 5 (Always). Confirmatory factor analysis (CFA) will be performed for reliability test.

3.3.3 Need for Autonomy

The need for autonomy is measured by adopting Steers and Braunstein (1976)'s Manifest Needs Questionnaire (MNQ) which is used to measure four needs, consisting of achievement, affiliation, autonomy, and dominance by using a behaviorally-based scale. Test and retest reliability for the scale is.77. In the questionnaire, the researcher asked respondents to answer five items based on their agreement. Responses ranged from 1 (strongly disagree) to 5 (strongly agree). These items were modified for physician profession. The examples of the items include "I try to make decisions for patients regarding their health and illness" and "I treat patients as I want, regardless of the opinions of the others."

3.3.4 Physician Collaboration

To measure perceived collaboration, the researchers asked respondents to answer five items based on their agreement. The five items on a perceived collaboration scale were chosen from Way et al. (2001). This collaborative measurement was intended to measure the collaboration between nurses and physicians. These five items matched the definition of collaboration provided by the Canadian Medical Association (CMA) (2007). CMA defines collaborative care as: "Collaborative care entails physicians and other providers using complementary skills, knowledge and competencies and working together to provide care to a common group of patients based on trust, respect and an understanding of each other's skills and knowledge. This involves a mutually agreed upon division of roles and responsibilities that may vary according to the nature of the practice personalities and skill sets of the individuals. The relationship must be beneficial to the patient, the physician and other providers" (pp. 3). Responses ranged from 1 (strongly disagree) to 5 (strongly agree). The examples of the items

include “I cooperate with other physicians in making decisions about patient care” and “I respect the knowledge and skills of others in making a shared decision.” Reliability of the scale was .85.

3.3.5 Patient Involvement

Patient involvement is measured using four items based on patient preference items from Flynn, Smith and Vanness (2006). Patient preferences are varied based on four categories. The first category is physical knowledge of the patient which represents how much information patients want the physician to know about themselves. The second category, disclosure of treatment choices, refers to shared decision-making among patients and physicians. The third category, discussion of treatment choice, refers to their preferences in a paternalistic approach of medical treatment. The last category, selection of treatment, refers to patient preferences in making a decision. The examples of items include “I believe that my doctor needs to know everything about my medical history to take good care of me” and “When there is more than one method to treat a problem, I should be told about each one.” The response is based on a 5-point Likert scale which ranges from 1 (strongly disagree) to 5 (strongly agree).

3.3.6 Functional and Existential Values

The items that are used to measure patient values were derived from Chalamon, Chouk and Heilbrunn (2013)’s categorization of patient values and expectation toward the healthcare system. Functional and existential value each has three items. The respondents were asked to rate the importance of 11 items from 1 (not important) to 5 (extremely important). The examples of functional values include “Information from physicians regarding your health and illness” and “Clarity of physician information regarding your health and illness.” The examples of the

existential value items include “regular checkup with physicians,” and “Private discussions with the physicians.” Reliability for the scales were .81 and .79, respectively.

3.3.7 Physician Job Satisfaction

The measure of physician job satisfaction includes six items that were chosen from Konrad, Fletcher, and Carey (2004)’s four facets of satisfaction scales. The researcher chose only the facets of satisfaction with relationship with patients, satisfaction with colleagues from the same hospital unit and satisfaction with colleagues from different hospital units because they are the most relevance to this study. The examples of the items include “I feel a strong personal relationship with my patients,” “my colleagues within the same hospital unit are a source of professional stimulation,” and “my colleagues from other hospital units value my unique perspective in practice.” The response is based on a 5-point Likert scale which ranges from 1 (strongly disagree) to 5 (strongly agree). Reliability of the scale will be tested by performing CFA.

3.3.8 Patient Satisfaction

Patient satisfaction items were adopted from Kleefstra, Zanbelt and De Haes (2010)’s Core Questionnaire for the Assessment of Patient Satisfaction (COPS). COPS is based on inpatient and outpatient needs in academic hospitals. COPS includes six components: Admission procedure, Nursing care, Medical care, Information, Autonomy, and Discharge and aftercare. In this study, nine items are chosen from Medical care, Information, Autonomy, and Discharge and aftercare. The reliability of satisfaction scales measured for each component are.82,.86, .85,.80, and.85, respectively. However, some items are excluded from this

questionnaire. Therefore, Cronbach's alpha coefficient was calculated for reliability for the new scales. In this survey, the respondents were asked to rate the satisfaction for each statement from 1 (not at all satisfied) to 5 (extremely satisfied). The examples of items are "the clarity of information given by nurses" and "The degree to which you could participate in treatment decisions".

3.4 RESEARCH DESIGN

3.4.1 Data Collection

The hospital managers had distributed emails to invite their physicians to complete a paper-based survey. The surveys were given to all physicians in the selected hospital units in an envelope. Respondents were also provided with a cover letter, instructions on how to complete the survey, and a consent form. After completion, physicians were required to drop a sealed envelope in drop boxes provided by the researcher. Heads of hospital units had been reminded and explained to the physicians about the survey two weeks after the survey was distributed. For patient surveys, the samples were based on an opportunity sample from each hospital unit. The paper-based survey was distributed to patients who have completed their doctor visits that particular day from each unit. After physicians and patients had completed the survey, they were required to drop them in boxes provided by the researcher. For the pediatric patient sample, parents or caregivers who accompanied the children filled out the questionnaire for their children.

3.4.2 Data Analyses

The questionnaire responses were coded and entered into the SPSS program (Norusis, 1999) and STATA. The data analyses included two sections: physician study and patient study. For both studies, the analyses includes (1) descriptive statistics; (2) data screenings for reliability of data including missing values, unengaged responses, normality, and homoscedasticity; (3) Cronbach's alpha coefficient calculation for variable scale reliability and intraclass correlation coefficient calculation to determine the degree of independence in the outcome variables across unit level; (4) confirmatory factor analyses to determine factor structures of observed variables; (5) convergent and discriminant validity test to determine whether the observed variables are intercorrelated with one another in the same construct; (6) common method bias tests, including Harman's single factor test and a common latent factor (CLF) method; and (7) multilevel modeling to determine the contributions of the control variables, independent variables, professional-culture fit, and patient value-culture fit in explaining dependent variables. Later, the interviews with hospital managers were analyzed based on the pattern of answers for each interview question. SPSS was used in step one to step three. SPSS-AMOS (Arbuckle and Werner, 1999) was used in step four and the CLF method in step six. Excel StatTools was used in step five (Gaskin, 2012). STATA was used in Harman's single factor test in step six and step seven.

3.4.3 Data Screening

Prior to the data analyses, the data were screened to ensure reliability. The procedures included (1) missing values, (2) unengaged responses, (3) normality, and (4) homoscedasticity. Descriptive statistics of variables, including minimum and maximum values, were used to

determine the accuracy of the physician and patient data. Missing values were assessed by using Microsoft Excel and the number of blanks for each cases were calculated. The unengaged responses were determined by checking the standard deviation for each case. A low standard deviation (sd < 0.2) refers to unengaged responses. Cases were deleted if they did not belong to a group of two or more people (Forsyth, 2006). The missing value items were replaced with median values for the particular items (Lynch, 2003). Normality of variables was assessed by examining skewness and kurtosis. Large values indicated problems with skewness and kurtosis.

3.4.4 Reliability and Intraclass Correlation Assessment of the Raw Scales

Cronbach's alpha was calculated in SPSS to determine the internal consistency of the raw scales (the observed values not corrected for common method bias) and to provide justification for combining the items into composite measures for these variables. Hair et al. (1998; p.118) recommended the acceptable threshold of an alpha value to be greater than 0.60. Each item was deleted and recalculated for a reliability score. The items that reduced the reliability score were dropped out from the scales.

Intraclass correlation coefficient (ICC (2)) was calculated to estimate the degree of non-independence in the observed variables across level one. ICC (2) that is close to zero indicates that level-one units are statistically independent. By doing this, a new variable "Alldept" was created by assigning a coding for each department at each hospital. To calculate ICC (2), large one-way ANOVA (loneway) was performed on STATA.

3.4.5 Confirmatory Factor Analyses

Confirmatory factor analyses were conducted using SPSS-Amos to determine whether the data supported factor structures of all independent variables. The overall model fit was assessed statistically by using goodness-of-fit indices, including Chi-square per degree of freedom (Chi-square/df), Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA) (Hair et al, 2010).

3.4.6 Convergent and Discriminant Validity

Convergent and discriminant validity tests were performed to ensure that these observed variables within the constructs are correlated with each other, or they are correlated more with observed variables in other constructs. Excel StatTools (Gaskin, 2012) was used to calculate the average variance extracted (AVE), the maximum shared variance (MSV) and the average shared variance (ASV). The convergent validity problem occurs if AVE is greater than 0.5 and the discriminant validity problems is present if MSV<AVE and ASV<AVE (Gaskin, 2012).

3.4.7 Common Method Bias

A common method bias (CMB) was determined using two methods, including Harman's single factor and common latent factor (CLF) to determine if there is a bias in the data set that could occur from collecting data using the same method. In this study, the surveys were used for both physicians and patients. For Harman's single factor test, an exploratory factor analysis (EFA) was performed in SPSS by selecting factor analysis to include all the scale items and constraining the number of factors extracted to be one. If a common method bias is present, a

single factor will be accounted for the majority of variances (Podsakoff et al., 2003). Harman's single factor test is not sufficient to confirm CMB. A common latent factor method (CLF) was also used to see if CMB is present. The procedure included adding a common latent variable CFA model in AMOS-SPSS. The differences between the standardized regression weights of the models with CLF and without CLF were compared (Podsakoff et al., 2003). A large difference (greater than 0.2) indicates that the response is biased.

3.4.8 Multilevel Modeling Analyses

Multilevel modeling analyses used in this study to determine the relationship between dependent variables and independent variables. According to Hayes (2006), multi-level modeling (MLM) is able to estimate effects in the model as either fixed or random. A fixed effect provides coefficients for each variable and is only applied to level one unit of analysis without concern about level two, while a random effect allows the variables to vary between level two units. MLM can be used to investigate the effect of an individual variable that varies across department units. To do this, individual variables' effects were set as random and were assessed whether the variance of the random intercept is statistically different from zero (Hayes, 2006).

The "xtmixed" command in STATA was used to capture the fixed component and the random component in the model. The variables were entered into a regression analyses in four steps to examine their effect on the three dependent variables. The four steps were: 1) demographics, 2) PCC, 3) independent variables and 4) interactions between the independent variables and PCC.

3.5 MULTILEVEL MODELS FOR PHYSICIANS

To assess whether this coefficient varies as a function of PCC, a multilevel model is estimated in which PCC is used a determinant of $\beta_{1j}, \beta_{2j}\ and\ \beta_{3j}$. In multilevel equations form, the model is

Level 1: $Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Pr\_Ex})_{ij} + \beta_{2j}(\text{Aut})_{ij} + \beta_{3j}(\text{Coll})_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}PCC_j + \mu_{0j};\ \ \beta_{1j} = \gamma_{10} + \gamma_{11}PCC_j;\ \ \beta_{2j} = \gamma_{20} + \gamma_{21}PCC_j;$

$\beta_{3j} = \gamma_{30} + \gamma_{31}PCC_j$

where Y_{ij} is physician job satisfaction in unit j. "Pr_ex" represents a physician's prior PCC experience, "Aut" is the need for autonomy, and "Coll" is perceived collaboration. β_{0j} is the average amount of job satisfaction across all physicians. $\beta_{1j}, \beta_{2j}\ and\ \beta_{3j}$ are the effects of $\text{Pr\_}Ex$, Aut ,Coll, on physician job satisfaction, respectively. r_{ij} represents the variance between the average physician job satisfaction in unit j and actual physician i's job satisfaction.

For the Level-2 model, γ_{00} is the grand mean or the average amount of physician job satisfaction across all units and μ_{0j} is the difference between average physician job satisfaction in the unit and the grand mean. γ_{01} is the effect of PCC on job satisfaction. γ_{10} is the average effect of prior PCC experience across units and γ_{11} is the extent to which prior PCC experience varies as a function of PCC. γ_{20} quantifies the average effect of job autonomy across units and γ_{21} is the extent to which job autonomy varies as a function of PCC. γ_{30} is the average effect of collaboration across units and γ_{31} is the extent to which Coll varies as a function of PCC.

Mixed model:

$$Y_{ij} = [\gamma_{00} + \gamma_{01}PCC_j] + (\gamma_{10})(\text{Pr}\_Ex)_{ij} + \gamma_{11}PCC_j(\text{Pr}\_Ex)_{ij} + [\gamma_{20}](Aut)_{ij} + \gamma_{21}PCC_j(Aut) + [\gamma_{30}](Coll)_{ij} + \gamma_{31}PCC_j(Coll) + \mu_{0j} + r_{ij}$$

3.6 MULTILEVEL MODELS FOR PATIENTS

In multilevel equations form, the patient model is

Level 1: $Y_{ij} = \beta_{0j} + \beta_{1j}(\text{Involve})_{ij} + \beta_{2j}(\text{Existential})_{ij} + \beta_{3j}(\text{Functional})_{ij} + r_{ij}$

Level 2: $\beta_{0j} = \gamma_{00} + \gamma_{01}PCC_j + \mu_{0j}$; $\beta_{1j} = \gamma_{10} + \gamma_{11}PCC_j$; $\beta_{2j} = \gamma_{20} + \gamma_{21}PCC_j$;

$\beta_{3j} = \gamma_{30} + \gamma_{31}PCC_j$

where Y_{ij} is patient satisfaction in unit j. "Involve" represents patient involvement in the decision-making process, "Existential " is patient existential value, and "Functional" is patient functional value. β_{0j} is the average amount of patient satisfaction across all patients. β_{1j}, β_{2j} $and\ \beta_{3j}$ are the effects of involvement, existential value and functional value on patient satisfaction, respectively. r_{ij} represents the variance between the average patient satisfaction in unit j and actual patient i's job satisfaction.

For the Level-2 model, γ_{00} is the grand mean or the average amount of patient satisfaction across all units and μ_{0j} is the difference between average patient satisfaction in the unit and the grand mean. γ_{01} is the effect of PCC on patient satisfaction. γ_{10} is the average effect of involvement across units and γ_{11} is the extent to which involvement varies as a function of PCC. γ_{20} quantifies the average effect of existential value across units and γ_{21} is the extent to

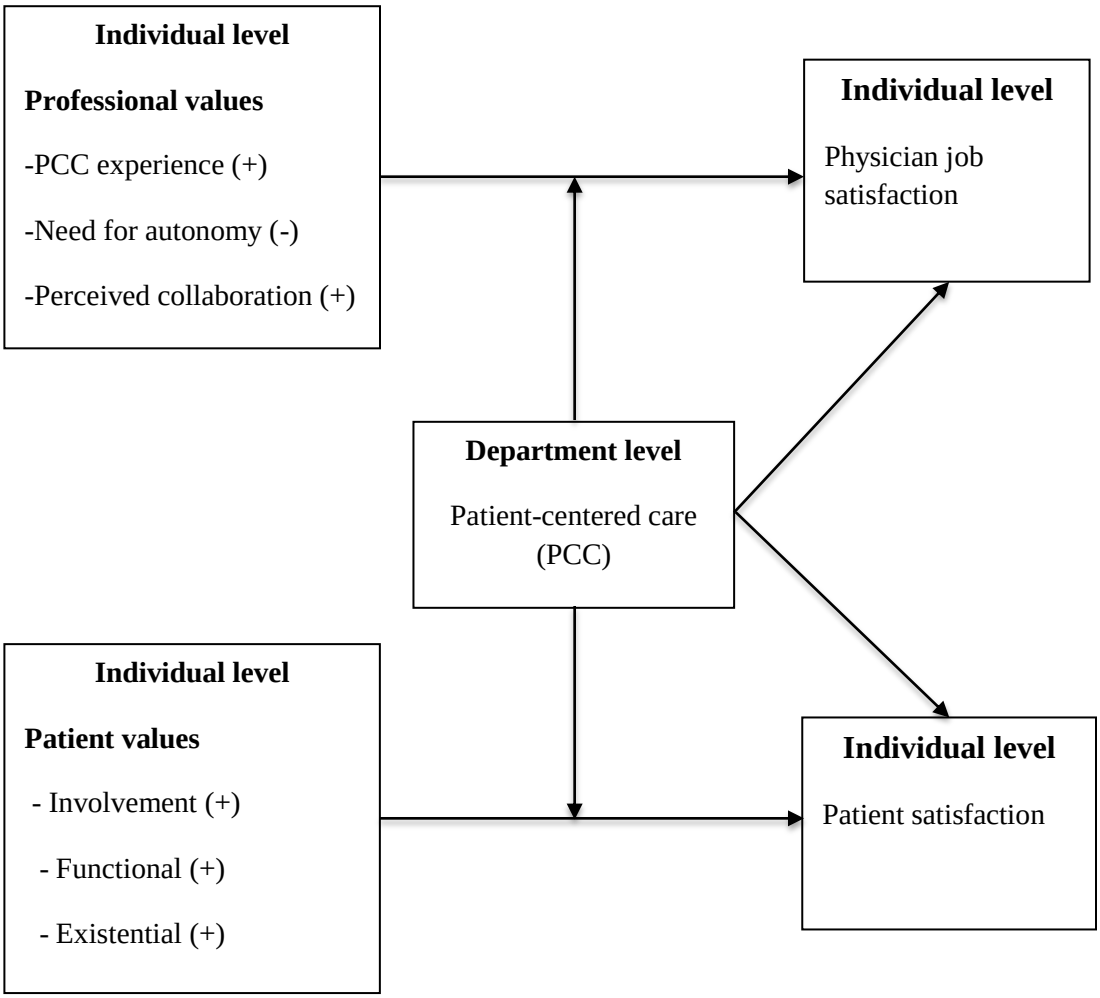
which existential value varies as a function of PCC. γ_{30} is the average effect of functional value across units and γ_{31} is the extent to which functional value varies as a function of PCC.

Mixed model:

$$Y_{ij} = \left[\gamma_{00} + \gamma_{01}PCC_j\right] + \ (\gamma_{10})\ (\text{Involve})_{ij} + \gamma_{11}PCC_j(\text{Involve})_{ij} + \left[\gamma_{20}\right](Existential)_{ij} + \gamma_{21}PCC_j(Existential) + [\gamma_{30}](Functional)_{ij} + \ \gamma_{31}PCC_j(Functional) + \mu_{0j} + r_{ij}$$

3.7 FIGURE

Figure 1. Relationship between patient-centered care, physician professional values, and outcomes



CHAPTER 4

ANALYSES OF THE DATA

This chapter presents the results of the study. First, the collection of data and its representativeness of the samples are evaluated. Next, the data is screened for reliability and the outputs from the intra-class correlation coefficients for physicians and patients are reported to assess whether or not there is an agreement in responses. Third, the results of confirmatory factor analyses that determine the factor dimensions are presented. Then, the validity and reliability results from the CFA are provided. Fourth, the results from the common method bias test, including Harman's single factor test and common latent factor method, are presented. Fifth, the multi-level analyses show the contribution of the control variables and independent variables in explaining dependent variables. Later, the interviews with hospital managers are analyzed based on the patterns of answers for each interview question. Prior to the data analyses, the data is screened for (1) missing values, (2) unengaged responses, (3) normality and (4) homoscedasticity.

4.1 MISSING VALUES AND UNENGAGED RESPONSES

Descriptive statistics of variables including minimum and maximum values were used to determine the accuracy of the physician and patient data (Table 4.1 and Table 4.2). For missing values in the physician data, 1 out of 305 cases was deleted because it has more than 10 percent of its values missing. By checking the standard deviation for each case, 3 cases were deleted because they were unengaged by responding the same for every item. Nine cases were deleted because they did not belong to a group of 2 or more people (Forsyth, 2006). The missing value

items were replaced depending on their characteristics with either mean or median values for the particular items (Lynch, 2003). Missing demographic variables including age and salary were replaced by mean values and education, employment and gender values were replaced by median values. As a result of these decisions, the total physician sample size became 292 cases. For patient data, only 20 cases have missing values of 10 percent or more. Similar to physician data, these values were replaced by median or mean values for each particular item. Missing demographic variables were treated the same way as the physician data. Seventeen cases were deleted as their department visits were not parallel with physician departments. The total sample size for patients became 1,027 cases.

4.2 NORMALITY

For both data sets, the normality of the variables was assessed by examining its skewness and kurtosis. Table 1 and Table 2 present the skewness and kurtosis of the observed variables for physicians and patients. For physicians, on average, variables have skewness and kurtosis values between one and negative one, except for some items on autonomy, PCC and job satisfaction scales. For patients, skewness was not a problem, but some of the PCC items experienced the kurtosis problem. However, the impact of small skewness and kurtosis deviations from zero disappears in a sample size of more than 200 (Tabachnick and Fidell, 1996). Since the current sample sizes for physicians and patients were over 300, skewness and kurtosis should not have any effect on the analyses and results.

4.3 HOMOSCEDASTICITY

Homoscedasticity was used to determine whether the residual errors of variables have a consistent variance across different levels of the variables (Hair et al., 2010). It can be assessed by using scatter plots with dependent variables on the y-axis and the variable's residual on x-axis (Figure 2 and Figure 3). The scatter plots for both physician and patient data showed a consistent pattern indicating homoscedasticity of the relationships.

4.4 REPRESENTATIVENESS OF THE SAMPLE

The final sample included responses from 66 hospital units in 8 private hospitals, a mix of 2 "large", 5 "medium" and 1 "small" size hospitals, located in Bangkok, Thailand. The physician sample included 292 full-time physicians and 1,027 outpatients. They were not evenly distributed among eight hospitals due to different sizes of hospitals. The response rates for physicians and patients are 40.56% and 64.18%. Table 3 presents the characteristics of hospital samples. Based on the information from the National Statistical Office of Thailand (NSO) in 2012, there are approximately 1,313 hospitals in Thailand. Private hospitals represent 24.45 % of the total, while public hospitals represent 75.55% The hospital sample represents 2.49% of the private hospitals. The sample and population distributions of hospital sizes are comparable with "medium size" represent the majority category.

Table 4 shows the characteristics of physician demographic variables. For the physician sample, females and males represent 44.5% and 55.5% in the sample respectively, which are nearly equal in proportion to the population. In comparing age, almost half of the samples are between the ages of 31 and 40 years old, and the sample is underrepresented in the less-than 30

categories. This is probably because basic medical education takes 6 years and almost all medical schools are public schools. Graduates are required to work for a certain amount of time at public hospitals. When the "18-30", "31-40" and "41-50" categories are combined, the differences between samples (74.66%) and the population (74.05%) compare favorably. For education, the majority of physicians (69.52%) received their specialization and along with a few six-year medical school graduates (4.45%). The majority of the samples received an income higher than 100,000 baht, of which 46.58% were in the more-than-two hundred thousand category alone.

For patients, according to NSO (2015), approximately 20% of patients received services from private hospitals between the years 2003-2010. Table 5 presents the patient sample characteristics. Patient samples are not evenly distributed among the eight hospitals due to the hospital sizes and the number of patient visits per day. Females (71.67%) represented substantially more than males (28.33%) in the sample. This was because males had a tendency to decline to participate in the survey. Similarly, the age of more-than-65 category is under represented because many of them refused to fill out the survey. More responses came from the 31 to 40 category (39.34%). For education, more than half of the samples received at least bachelor's degree (76.05%). A majority of the sample work for private companies (56.09%), followed by self-employed (26.58%). The smallest group works for government agencies and state enterprises (7.59%). More than 50% of the sample made their hospital visits to follow up with their doctors (55.11%), followed by medical checkups (21.42%), urgent care (17.33%) and other reasons (6.13%). Approximately 55% of the sample reported having "Fair" health status, while reported only 1.56% reported their health as "Excellent." The majority do not have any

medical problem (78.29%). The income brackets of 10,000 to 19,999, combined with 20,000 to 29,999, consists of 42.84% of the sample.

Table 6 shows units across different hospitals where the data was collected. The units were not parallel in all hospitals. Some of the hospitals do not have the same units and some of them cannot provide the information needed for the study. There a total of 66 units, in which each unit consisted of more than 3 physician data.

4.5 ANALYSES OF THE PHYSICIAN DATA

Internal consistency reliabilities (Cronbach's alpha) for raw scales (the observed values not corrected for a common method bias) were calculated and shown in Table 7. The scale reliabilities for the dependent variable and the three independent variables were generally high (.81 to .92), indicating that physicians answered the items consistently for these scales and it can be justified to combine the items into composite measures for these variables. However, the "autonomy" scale had a low alpha of .47, indicating that physician responses on autonomy items are diverse. Then, alphas were calculated with each individual item in a scale deleted. Two items were deleted from the "autonomy" factor, which increased the scale reliability to .61. Deleting items for other variables did not change the alpha much from the prior results. Thus, the autonomy scale included 3 items, while the other four scales were maintained with all items. To test whether the observed PCC variable can be aggregated into a department-level for the analyses, the intra-class correlation coefficients (ICC (2)) were calculated to assess the consistency of measurements and to see the proportion of the outcome variance that is explained within the group variance. A new variable "alldept" was created by assigning a coding system

for each department at each hospital. A total of 72 codes were created for the variable. Large one-way ANOVA (loneway) was performed on STATA.

Table 7 also shows the results from the ICC (2) calculation, PCC and job satisfaction have low intra-class correlation coefficients indicating that physicians do not have a consensus on their perception of these variables. The patient PCC with the ICC of .65 was used in the analyses as an objective measure for the unit-level PCC. Table 8 reports means and standard deviations for the dependent and independent variables. Mean scores were calculated for the items in each scale. The mean score of 4.04 suggests physicians on average were somewhat satisfied with their jobs. They perceived themselves as patient-centered and collaborated well with other physicians with mean scores of 4.39 and 4.21 respectively). They also have a good amount of prior experience with PCC while they were attending school and working in hospitals. At the same time, with autonomy mean score of 4.38, physicians also need to have their own autonomy, with a few cases that do not need autonomy.

4.5.1 Dependent Variable

The mean of the dependent variable scores for each demographic category was calculated to see if differences in the dependent variable existed as a function of demographic variables (Table 9). For hospitals, hospital "H" appeared to have the highest level of job satisfaction with the mean score of 4.23, while hospital "C" has the lowest level of job satisfaction with the mean score of 3.75. For age, the highest mean was in the 51 to 60 category and the lowest mean was in the greater than 60 years old category. There was a slightly different level of job satisfaction between men and women. Specialized physicians had the highest mean score, while six-year

medical graduates had the lowest job satisfaction. The income category between 40,000 and 49,000 baht appeared to have the highest level of satisfaction in comparison to the other categories. For departments, wellness-centered physicians were the least satisfied with their jobs, whereas physicians in Ear, Nose and Throat had the highest level of job satisfaction. Then the pairwise t-tests were tested for the significance of differences between the means within each control variable. To do this, means from each control variable were computed in a formulated t-test website called "Simple Interactive Statistical Analysis", two means at a time. The results showed the mean differences for all control variables are not significant; thus, it can be concluded that none of the categories have higher job satisfaction over the others.

4.5.2 Relationship among Physician Variables

Correlation matrices of the dependent variable and four independent variables at the individual level and one independent variable at unit level are presented in Table 10. Correlation coefficients indicate both the direction and strength of the relationship between variables (Cohen et al., 2002). For example, job satisfaction and individual-level PCC is moderately and positively correlated ($r = .41$, $p < .00$). That is, a high value on patient- centered care is associated with a high value on job satisfaction. The relationship is less strong with unit-level PCC ($r = .04$, $p < .05$). These results are consistent with a prior PCC study in other healthcare professionals. The relationship between job satisfaction and U-PCC is significant but the coefficient is small. The positive relationships between job satisfaction and collaboration, prior PCC experience, and autonomy are less strong correlated (.31, .12, and .13 respectively). Consistent with the prior study, PCC is positively and statistically related to autonomy, which means that the higher level of autonomy is associated with higher PCC ($r = .25$, $p < .001$) but it is not a strong relationship.

Consistent with other past research on autonomy and collaboration, autonomy is positively correlated with collaboration but the correlation coefficient is relatively low ($r = .12$, $p<.05$).

4.5.3 Confirmatory Factor Analyses

Confirmatory factor analyses (CFA) were conducted to determine the factor structure amongst the manifest variables. CFA was used to confirm whether the data supported the proposed factor structure which is depicted in Chapter 3 (Figure 3). The CFA analyses included 38 items to measure patient-centered care (14 items), autonomy (3 items), collaboration (5 items) and experience (5 items) from physician perception. With all individual items included in the CFA model, the SPSS-Amos did not yield any results. According to Jöreskog and Sorbom (1986), it is difficult to attain a model to fit with too many parameters and a relatively small sample. Research suggests item parceling when structures are needed (Hall, Snell, and Foust, 1999). Parceling can yield results as good as using individual items and can better fit the model (Chen et al., 2015; Bandalos, 2002; Little et al., 2002). There is research that uses parceling and gave favorable results. For example, Bandalos (2002) analyzed parceled data and found that parceling gave better fit results for RMSEA, CFI and the Chi-square test. Thus, five PCC parcels and four job satisfaction parcels were created the factor loadings.

To do the parceling for PCC, the highest loading item went to the first parcel, the second highest went to the second parcel and so on. After each factor already had one item, the next highest went to the fifth factor again, followed by the fourth, third, second and first. The average of each parcel was calculated to be used in the CFA. Job satisfaction parcels were created the same way as done for PCC parcels.

The CFA for the hypothesized 5-factor model using AMOS were performed. The results shown in Table 11 indicated that all the items are well loaded to their constructs. Then, the hypothesized model was compared with six alternative models. The results showed that the hypothesized 5-factor model produced the best fit ($\chi 2 = 169.54$, df = 67, $p < .001$, comparative fit index (CFI) = .96, Tucker–Lewis index (TLI) =.94, and root-mean-square effort of approximation (RMSEA) =.07).

Figure 4 shows the results of the measurement model with using the PCC and job satisfaction parcels. Two of the items for autonomy scales had low loading and one had a loading greater than one. One of the collaboration items loading was low. Table 4.10 shows the model fit indices for this particular model. Only two of the model fit indices (Chi-square per degree of freedom (Chi-square/df) = .29 and the Root Mean Square Error of Approximation (RMSEA) =.08) meet the thresholds for model fit (Hair et al, 2010; Hu and Bentler, 1999). By dropping "aut2" with high loading, and "col1" with low loading which was mentioned above, it did not improve the model fit, but it led to a lower loading in "col2"; thus, "col2" had to be removed from the model.

CFA was performed again with new PCC and job satisfaction parcels (Figure 5). For the new parcels, two PCC items and four job satisfaction items with loadings lower than .5 were removed from the model. Then, four new PCC parcels and three new job satisfaction parcels were created from the remaining items. The reliability of each scale was calculated again to ensure a better fit model. Three items from the experience scale were removed from the model

because by dropping them it would increase the scale reliability. The results in Table 12 show a better fit model (Chi-square/df = 2.53; CFI = .96 , GFI = .93, AGFI = .89).

Table 13 provides a description for each item with their factor analysis scores. The loadings for all PCC parcels are moderately high (.88, .90, .83, .88) while the loadings for "Collaboration" and "Prior PCC Experience" items are in an acceptable range. In contrast, the loadings for "Autonomy" items are low (.36 and .55). Convergent and discriminant validity tests were needed to ensure that these measures are in fact related in reality, and to determine if it is acceptable to keep the autonomy variable in the model since it has low factor loadings and low a Cronbach's alpha coefficient.

Table 14 shows the results of the convergent and discriminant validity tests in CFA. All scales have an Average Variance Extracted (AVE) greater than .5, except for the autonomy scale which had an AVE of .22. All of the AVE scores where greater than the Maximum Shared Variance (MSV) and Average Shared Variance (ASV). Thus, the results did not show problems of validity for all variables, except autonomy. That means the latent variable "autonomy" is not well explained by the observed variable. Therefore, autonomy scale needed to be removed from the model. To ensure that removing autonomy scale would not affect the overall model fit, CFA was performed once again without autonomy. The items loadings for other factors were slightly changed (Figure 6). The quality of the fit measures were slightly improved (See Table 6). The Chi-square/df was reduced from 2.53 to 2.36. The quality of its index (GFI) went up by .01, while the adjusted quality of the fit index (AGFI) was increased to .90. The root mean square

error of approximation (RMSEA) was slightly reduced in the decimals. Therefore, the model fits slightly better without autonomy scale.

4.5.4 Common Method Bias

A common method bias (CMB) was tested by two methods: Harman's single factor and common latent factor (CLF) to see if there is a bias in the data set which can influence the response given. For Harman's single factor, if a common method bias is present, a single factor will be accounted for the majority of variances (Podsakoff et al., 2003). For the physician study, 43.25 % of variance was explained by a single factor, which means that there is a possibility of a common method bias.

In this case, Harman's single factor test is not sufficient to confirm CMB. A common latent factor method (CLF) was also used to ensure if CMB is present. To do this, a common latent variable is added into the CFA model in AMOS-SPSS (Figure 7). Job satisfaction was excluded from the model because by adding the dependent variable in the model, it allows the error terms to be correlated with other variables. This would have created a bias when we tried to obtain the composite values from factor score coefficients which were used in the multilevel analyses. Then, the differences between the standardized regression weights of the models with CLF and without CLF were calculated (Podsakoff et al., 2003). If the difference is large (greater than .2), it indicates that the responses are biased. Table 15 shows that there were moderately high differences between the standardized regression weights, especially for PCC. It was confirmed that there is a bias in the responses, at least for PCC. Thus, CLF was retained in the model in order to obtain imputed values. This approach had eliminated CMB from independent

variables. The model fit indices did not improve much after adding the CLF into the model (see Table XII).

4.5.5 Multicollinearity

Multi-collinearity was tested in order to see if the independent variables are highly correlated with one another, which may have an effect on their coefficient estimates. In order to do this, the ordinary least square regression was performed by STATA with all independent variables by using imputed values from the CFA with CLF models. Manifest autonomy value is included for comparison to see if autonomy is also affected by multi-collinearity. Then, variance inflator factors (VIF) were calculated to see how much the variances of coefficient estimates are inflated. All variables had fairly low VIF, indicating that there will not be a significant impact of multi-collinearity on the analyses and results (Table 16).

4.5.6 Multilevel Analyses

The purpose of this study was to investigate the role of PCC, autonomy and collaboration in explaining physician job satisfaction. Of particular interest was whether the interactions between PCC and other independent variables have any effects on the dependent variable. Thus, multilevel mixed models on STATA were used to test the hypotheses in this study (Table 17). Multilevel mixed effect models consist of both fixed and random effects. Fixed effects allow the standardized regression coefficients to be interpreted directly, whereas random effects are shown as estimated variances. Since the ICC (2) indicated that physician individual-level PCC (I-PCC) cannot be aggregated into a higher level variable, the objective PCC measure

derived from patient unit-level PCC (U-PCC) was used as a proxy for physician U-PCC in the analyses.

The imputed values for PCC, collaboration, and prior PCC experience from the CLF model were used in this analysis, while job satisfaction is a manifest variable derived from adding observed satisfaction scores and average them. The variables were entered into regression analyses in four steps to examine their effect on the three dependent variables. As Table 18 shows, the independent variables in four steps were 1) demographics, 2) U-PCC, 3) independent variables and 4) interactions between U-PCC and independent variables, 5) autonomy and its interaction with U- PCC. The U-PCC is an objective measure of PCC derived from patient U-PCC. The demographic or control variables were entered into the equation first as a set in model 1. The results showed that demographic variables including age, gender, education and income are not related to physician job satisfaction.

Then PCC was entered in the equation (Step2), Table 18 shows that U-PCC was not related to physician job satisfaction; thus, hypothesis 1a is not supported. Adding U-PCC into the model did not increase variance. The next step, physician characteristics, including collaboration and prior PCC experience, were entered. The results showed collaboration and prior PCC experience are positively related to physician job satisfaction (β =.47, $p< .001$; β =.09, $p< .05$); thus, hypothesis 3a and 4a are supported. Adding physician characteristics increase the variance explained by 10%. Inconsistent with the prediction in hypotheses 3b and 4, U-PCC did not moderate the relationship between prior PCC experience, collaboration and job satisfaction. Adding more interaction terms did not improve the total variance explained. Further, the

manifested autonomy variable and its interaction with U-PCC were included in model 5 in order to test for hypotheses 2. The relationship between autonomy did not have a significant positive affect on job satisfaction. Similarly, the interaction between autonomy and PCC did not have any effect on job satisfaction; thus, hypothesis 2a and 2b are not supported. Including autonomy and its interaction with PCC did not significantly change the explained variance. Thus, they can be excluded from the model.

Deviances were also calculated to compare the models by measuring the lack of fit between data and the models. Deviances can be used only when a model is nested in another model and a lower deviance represents a better fit. The results from the deviances show model five has the lowest coefficient (||D|| = 275.18). However, model five has more parameters which will always have a lower deviance than other models. It cannot be used to justify a best model fit.

4.6 ANALYSES OF PATIENT DATA

The results from the calculation of internal consistency reliabilities (Cronbach's alpha) for raw scales are presented in Table 19. The scales for the dependent variable and other four independent variables were generally high (.74 to .95), indicating that patients answered the items consistently for these scales and it can be justified to combine the items into composite measures for these variables. Then, alphas were calculated with each individual item in a deleted scale. By deleting two items from the "involvement" factor, the scale reliability was increased to 79. Deleting items for other variables did not change the alpha much from the prior results. Thus, the involvement scale only included 2 items while the other four scales were maintained

with all items. To ensure that the variable with an individual unit of observation can be aggregated into a department-level for analyses, the intra-class correlation coefficient (ICC (2)) was calculated to assess the consistency of measurements and to see the proportion of the outcome variance that is explained within group variance. A new variable "alldept" was created the same way that was done in physician study. Table 4.18 shows the results from the analysis. ICC (2) for PCC is large enough to be able to aggregate it into a higher level variable.

Table 20 reports minimums, maximums, means, and standard deviations for the dependent variable and independent variables calculated from raw data. Mean scores were calculated for the items in each scale. The mean score of 4.06 suggests that on average, patients were somewhat satisfied with their hospital visits. However, the gap in satisfaction is wide as the minimum is 1.89 while maximum is 5. For PCC, they agree that hospitals are fairly patient-centered with slightly higher scores. On average, patients prefer to be part of the decision making process regarding their health and illness with a mean score of 4.35. The mean score for the functional value (4.40) is higher than the existential value (4.4) when they decide to make a hospital visit.

4.6.1 Dependent Variable

In parallel with the physician study, the mean of dependent variable scores for each demographic category were calculated to see if differences in the dependent variable existed as a function of demographic variables (Table 21). For hospitals, hospital G appeared to have the highest level of patient satisfaction with a mean score of 4.25, while hospital D had the lowest level of patient satisfaction with a mean score of 3.82. There were slight differences in the level

of patient satisfaction among different age groups. Similarly, the differences were insignificant for men and women. Patients who received a bachelor's degree or higher had higher patient satisfaction, while patients in the "other" category had the lowest job satisfaction. For employment, there were slight differences among the four categories. For an annual income between 100,000 and 150,000 baht this category appeared to have a highest level of satisfaction in comparison to other categories. For departments, patients in the Dermatology department had the least patient satisfaction, whereas patients in the Urology department had the highest level of patient satisfaction. Again, the pair wise t-tests were performed the same way as in the physician study. The results showed that the mean differences are not significant; thus, it can be concluded that none of the categories have higher patient satisfaction over the others.

4.6.2 Relationship among Patient Variables

Multilevel correlation matrices of one dependent variable, three demographic variables, four individual-level independent variables and one unit-level independent variable were calculated in order to see their relationships and interpret the regression results (Table 22). Patient satisfaction and individual-level PCC were moderately and positively correlated ($r = .61$, $p < .001$). That is, a high value on I-PCC is associated with a high value of patient satisfaction. However, the relationship is weaker with a unit-level PCC ($r = .39$, $p < .05$). This is consistent with prior PCC study in other healthcare professionals. The positive relationships between patient satisfaction and involvement, existential value and functional values were less strong (.08, .25, and .26 respectively). I-PCC and U-PCC were positively and statistically correlated to patient involvement, existential value and functional value which means that the higher levels of these variables are associated with a higher PCC.

4.6.3 Confirmatory Factor Analyses

In parallel with the physician study, different CFA were also conducted to determine the factor structure among the value items. The patient study includes 31-item instruments to measure one dependent variable (9 items) and four independent variables, including patient-centered care (14 items), involvement (2 items), existential value (3 items) and functional value (3 items). Initially, all individual items were included in the CFA model (Figure 8). The result shows that one of the items on the patient satisfaction scale has a low factor loading score (.34). The model fit indices show Chi-square per degree of freedom of 7.04; GFI of .83; and RMSEA of .08. Some of these model fit indices did not meet their thresholds (Hair et al, 2010; Hu and Bentler, 1999).

Since it was difficult to achieve a model fit with many parameters, parceling was conducted in the same way that physician analyses were done. Fourteen PCC items were parceled into 4 parcels based on their loadings. One item with a low factor loading score on the patient satisfaction scale was dropped and the remaining items were parceled into four parcels. Then, CFA was performed again with 4 PCC parcels, 3 patient satisfaction parcels, 2 involvement items, 3 existential value items, and 3 functional value items (Figure 9). All the fit indices were improved dramatically as shown in Table 23. For example, Chi-square per degree of freedom is improved dramatically from 7.04 to 2.58, the GFI from .83 to .96. and RMSEA was reduced from .08 to .04. These values have met the specified thresholds to demonstrate fit.

The CFA for the hypothesized 5-factor model using AMOS were also performed. The results shown in Table 24 indicated that all the items are well loaded to their constructs. Then, the hypothesized model was compared with six alternative models. The results showed that the

hypothesized 5-factor model produced the best fit ($\chi 2 = 206.61$, df = 80, $p < .001$, comparative fit index (CFI) = .99, Tucker–Lewis index (TLI) =.99, and root-mean-square effort of approximation (RMSEA) =.04.

Table 25 presents factor analysis scores for each variable. The loadings for all PCC parcels are moderately high (.94, .94, .92, .90) while the items loadings for "Involvement", "Existential" and "functional" are smaller but in an acceptable range except for "Prefer regular medical-checkup" and "Prefer competent physicians" on existential values and functional values (.57 and .60). The convergent and discriminant validity tests were conducted to ensure that the latent variables are well explained by observed variables and they are not better explained by other variables.

Table 26 shows the results of convergent and discriminant validity tests in CFA. All scales have AVE greater than .5 and all of the AVE scores are greater than MSV and ASV. Thus, the results did not show problems of convergent and discriminant validity for any of the variables. It indicates that all factors are well explained by the observed variables.

4.6.4 Common Method Bias

A common method bias (CMB) was conducted the same way as the physician study was done. The result from Harman's single factor shows that 48.46 % of variance was explained by a single factor, which means that there is a possibility of common method bias. Since Harman's single factor test is not sufficient to confirm CMB, a common latent factor method (CLF) was also used in patient study to verify that CMB is present. CLF was also conducted the same way

as the physician study was done in which a common latent variable is added into the CFA model in AMOS-SPSS (Figure 10). By comparing the differences between the standardized regression weights of the models with CLF and without CLF, the results showed moderately high differences between the standardized regression weights for existential and functional items (.20, and .23) (see Table 27). That means they are largely affected by CMB. Thus, CLF was also retained in the model in order to obtain imputed composite values from factor score coefficients to be used in the multilevel analyses. The model fit indices were not improved much after adding the CLF into the model (see Table 23).

4.6.5 Multicollinearity

Multi-collinearity was tested the same way as the physician study was done. The VIF coefficient for all variables and interactions were lower than .5, indicating that there will not be a significant impact of multi-collinearity on the analyses and results (Table 28).

4.6.6 Multilevel Analyses

The purpose of the patient study was to investigate the role of patient values in explaining patient satisfaction. Of particular interest was whether the interactions between PCC and other independent variables have any effects on patient satisfaction. Multilevel analyses were used to determine if random variances occurred based on hospital-unit level. The imputed values for PCC, involvement, existential value and functional value from the CLF model were used in these analyses, while patient satisfaction is a manifest variable deriving from adding observed satisfaction scores and averaging them. The variables were entered into regression analyses in four steps to examine their effect on the dependent variables. As Table 29 shows, the

independent variables in four steps were 1) demographics, 2) Unit-level PCC, 3) patient characteristics and 4) interactions between unit-level PCC and patient characteristics. The demographic or control variables were entered into the equation first, as a set in model 1. The results showed that patients who are self-employed and "other" employment are positively related to patient satisfaction (β=.14. and β =.16, p<.05). Patients who visited the hospitals for urgent care and for other reasons related negatively with patient satisfaction (β = -.15. and β = -.19, p< .05). Patients with a poor health status were related positively with patient satisfaction (β =.21, p< .01). While patients with a good health status are related negatively (β = -.07, p< .10).

Then unit-level PCC was entered in the equation (Step2), Table 29 shows that PCC was highly related to patient satisfaction in a positive direction (β = 1.08, p< .001); thus, hypothesis 1b is supported. PCC explained an additional 13% of the variance in the model. The next step, patient characteristics including patient involvement, existential value and functional value were entered. The results showed the PCC coefficient was slightly increased (β =1.11, p< .001). Patient involvement, existential and functional values were positively related to patient satisfaction (β =.10, p< .05; β =.16, p< .05; β =.42, p< .05); thus, hypothesis 5a, 6a and 6b are supported. Adding the patient characteristics only increased the total variance explained by 5%. Later, the interaction terms were entered in step 4. Inconsistent with the prediction in hypotheses 5b, 6c, and 6d, the relationship between patient values and patient satisfaction did not moderate by PCC. Including the interaction terms in the model only accounted for an additional 2 % of the variance explained by the model. Later, the deviances were also calculated to compare the models. The results showed model five was the best model fit with the lowest deviance.

4.7 POST HOC ANALYSES

Originally, the study focused on patient-centered care as a group phenomenon; however, the analyses did support the relationship between the unit-level PCC and dependent variables. Since PCC is an important organizational practice that has recently been implemented widely among westernized hospitals, and the PCC study of physicians is limited, analyses at the individual level were also performed to provide a better understanding of the relationship between I-PCC, physician job satisfaction and patient satisfaction.

For the physician study, the imputed values for the physician I-PCC, collaboration and prior PCC experience from the CLF model, were used in this analyses, while job satisfaction was a manifest variable deriving from adding observed satisfaction scores and averaging them. These values were normalized before using in the multilevel regression. Then, the variables were entered into regression analyses in four steps to examine their effect on the three dependent variables. As Table 30 shows, the independent variables in four steps were 1) demographics, 2) individual-level PCC, 3) physician characteristics and 4) interactions between individual-level PCC and independent variables and 5) autonomy and its interaction with PCC. The demographic or control variables were entered into the equation first, as a set in model 1. The results showed that demographic variables including age, gender, education and income are not related to physician job satisfaction.

Then PCC was entered in the equation (Step2), Table 30 shows that PCC was related positively to physician job satisfaction (β=.58, $p<.01$). PCC explained an additional 16% of the variance. The next step, physician characteristics, including collaboration and prior PCC

experience, were entered. The results showed collaboration was positively related to physician job satisfaction (β =.44, p<.01) but prior PCC experience did not have any effect on physician job satisfaction. Adding physician cultural dimensions added another 10 % of the explained variance. Individual-level PCC did not moderate the relationship between prior PCC experience, collaboration and job satisfaction. Adding more interaction terms did not improve the total variance explained. Furthermore, the manifested autonomy variable and its interaction with individual-level PCC were included in model 5. The relationship between autonomy did not significantly affect job satisfaction. Similarly, the interaction between autonomy and PCC did not have any effect on job satisfaction. Including autonomy and its interaction with PCC did not contribute to any explained variance. Deviances were also calculated to compare the models. The results show model five has the smallest coefficient. However, model five has more parameters which will always have a lower deviance than other models. It cannot be used to justify a best model fit.

For a patient study, the imputed values for I-PCC, involvement, existential value and functional value from the CLF model were used in these analyses while patient satisfaction was a manifest variable derived from adding observed satisfaction scores and average them. These values were normalized before using in the multilevel regression. Then, the variables were entered into a regression analyses in four steps to examine their effect on the three dependent variables. As Table 31 shows, the independent variables in four steps were 1) demographics, 2) individual-level PCC, 3) patient characteristics and 4) interactions between PCC and patient characteristics. When entering demographic variables in the equation, the results were the same as the earlier analyses.

Then, individual-level PCC was entered in the equation (Step2), Table 31 shows that PCC was highly related to patient satisfaction in a positive direction (β =.90, p<.01). The PCC explained an additional 33% of the variance to the model. The next step, patient characteristics including involvement, existential value and functional value were entered. The results showed the PCC coefficient was reduced to .88 (p<.01). Existential and functional values were positively related to patient satisfaction (β =.09, p<.10; β =.50, p<.05) but involvement did not have any effect on patient satisfaction. Adding the patient characteristics only increased the total explained variance by 5%. Later, the interaction terms were entered in step 4. The relationship between patient characteristics including patient involvement, existential value, and functional value, and patient satisfaction was moderated by PCC (β =.25, p< .001; β =.22, p< .05; β =.56, p<.05.)

The interactions between patient characteristics and PCC were plotted with conditional values of 1SD above and below the mean (Figure 11 to Figure 13). PCCH indicates high-level PCC initiatives, PCCM indicates average-level PCC initiatives, and PCCL indicates low-level PCC initiatives. Simple slope analyses showed that patient involvement and existential value were related positively to patient satisfaction when PCC is high (β = .15, z = 3.28, p< .001; β = .23, z = 2.98, p< .001), whereas the variables were not related to patient satisfaction when the PCC was low (β = -.07, z = -1.65, p = .11; β = .04, z = .66, p = .51). Functional value was found to be related positively to patient satisfaction in both high and low PCC (β = .86, z = 5.73, p< .001; β = .35, z = 2.58, p< .05). Including the interaction terms in the model only accounted for additional 2 % of the variance explained by the model. Later, the deviances were also calculated to compare the models. The results showed model four has the lowest deviance.

Further, the effect of age and gender on the relationship between PCC and physician job satisfaction; and PCC and patient satisfaction were investigated. As mentioned in Chapter 2, Thai medical education in the past did not focus on patients and the relationship between Thai physicians and their patients portrayed the paternalistic model. It is also important to understand the effect of age on the relationship between PCC and physician job satisfaction. Similarly, age differences among patients can affect the relationship between PCC and patient satisfaction. Cooper-Patrick et al. (1999) found that older patients are more interested, more in their health and participate more during patient-physician conversations. They are more satisfied if hospitals have adopted the PCC initiative. It is also possible that the relationships between PCC and physician job satisfaction will be different for men and women due to different factors. For example, men were found to have higher levels of job autonomy than women (Fagan and Burchell, 2002). Male physicians can be less satisfied in hospital with PCC initiative.

The multi-level modeling method was used to examine the effects of demographic variables by adding the interactions between age and PCC; and gender and PCC to the prior model in STATA. The results found age and gender did not significantly moderate the relationships. Males and females will have the same level of physician job satisfaction and patient satisfaction. Younger physicians or older physicians would not make any different in the relationship between PCC and physician job satisfaction.

Fixed effects models were carried out to examine whether the relationship between dependent and independent variables are different from the results analyzed with multi-level modeling. The results are shown in Tables 32 and 33. Consistent with findings in multi-level

analyses for physicians, PCC is positively related to physician job satisfaction ($\beta = .56$, $p < .001$) and collaboration significantly affected physician job satisfaction ($\beta = .47$, $p < .001$). For patients, PCC is also positively related to patient satisfaction ($\beta = .78$, $p < .001$). Similarly, existential and functional values have some effects on patient satisfaction ($\beta = .12$, $p < .05$; $\beta = .47$, $p < .001$). However, these effects are smaller than the results from multi-level analyses. In contradict to the result in patient analyses, involvement was found to significantly affect patient satisfaction ($\beta = .08$, $p < .10$). All the interaction terms are significant, indicating that the relationship between PCC and patient satisfaction will be stronger when involvement, existential value and functional value are present. The variances accounted for by the models are quite similar with the prior physician and patient analyses.

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4.8 TABLES

TABLE 1. Skewness and Kurtosis of Physician Observed Variables [a]

Physician Variables	Skewness[b]	SE	Kurtosis[c]	SE	Physician Variables	Skewness[b]	SE	Kurtosis[c]	SE
Autonomy					***Collaboration***				
aut1	-1.86	0.14	2.22	0.28	col1	-0.43	0.14	0.03	0.28
aut2	-1.79	0.14	3.64	0.28	col2	-0.68	0.14	1.19	0.28
aut3	-1.19	0.14	2.21	0.28	col3	-0.64	0.14	2.04	0.28
aut4	-0.74	0.14	1.16	0.28	col4	-0.39	0.14	-0.07	0.28
aut5	0.25	0.14	-0.65	0.28	col5	-0.48	0.14	0.57	0.28
Patient-centered care					***Prior PCC experience***				
pcc1	-2.07	0.14	6.54	0.28	exp1	-0.85	0.14	1.70	0.28
pcc2	-0.95	0.14	1.95	0.28	exp2	-0.42	0.14	-0.15	0.28
pcc3	-0.67	0.14	0.10	0.28	exp3	-0.78	0.14	0.15	0.28
pcc4	-0.22	0.14	-0.04	0.28	exp4	-0.66	0.14	-0.25	0.28
pcc5	-0.26	0.14	-0.03	0.28	exp5	-0.66	0.14	-0.29	0.28
pcc6	-0.71	0.14	0.18	0.28	***Job satisfaction***				
pcc7	-0.13	0.14	-0.22	0.28	sat1	-0.28	0.14	0.35	0.28
pcc8	-0.64	0.14	0.09	0.28	sat2	-0.09	0.14	-0.01	0.28
pcc9	-0.66	0.14	0.78	0.28	sat3	-0.32	0.14	-0.17	0.28
pcc10	-0.96	0.14	0.67	0.28	sat4	-0.78	0.14	0.02	0.28
pcc11	-0.55	0.14	-0.01	0.28	sat5	-1.08	0.14	1.65	0.28
pcc12	-0.55	0.14	0.13	0.28	sat6	-0.48	0.14	0.22	0.28
pcc13	-0.34	0.14	-0.34	0.28	sat7	-0.67	0.14	0.98	0.28
pcc14	-1.47	0.14	2.30	0.28	sat8	-0.41	0.14	0.59	0.28
					sat9	-0.52	0.14	0.80	0.28
					sat10	-0.40	0.14	0.68	0.28
					sat11	0.01	0.14	0.23	0.28

[a] n (level 1) = 292; [b] Skewness if a coefficient is < -1 or > -1; [c] Kurtosis if a coefficient is < -1 or > -1

TABLE 2. Skewness and Kurtosis of Patient Observed Variables [a]

Patient Variables	Skewness[b]	SE	Kurtosis[c]	SE	Patient Variables	Skewness[b]	SE	Kurtosis[c]	SE
Involvement					***Existential***				
inv1	-0.70	0.08	0.85	0.15	exist1	-0.23	0.08	-0.41	0.15
inv2	-0.75	0.08	0.32	0.15	exist2	-0.52	0.08	0.33	0.15
inv3	0.68	0.08	0.24	0.15	exist3	-0.31	0.08	-0.23	0.15
inv4	0.77	0.08	0.64	0.15	***Functional***				
Patient-centered care					func1	-0.36	0.08	-0.36	0.15
pcc1	-0.36	0.08	0.11	0.15	func2	-0.59	0.08	0.03	0.15
pcc2	-0.42	0.08	0.67	0.15	func3	-0.63	0.08	0.46	0.15
pcc3	-0.42	0.08	0.68	0.15	***Patient satisfaction***				
pcc4	-0.35	0.08	0.12	0.15	sat1	-0.38	0.08	0.26	0.15
pcc5	-0.67	0.08	1.25	0.15	sat2	-0.30	0.08	-0.50	0.15
pcc6	-0.57	0.08	1.01	0.15	sat3	-0.51	0.08	0.42	0.15
pcc7	-0.36	0.08	0.22	0.15	sat4	-0.44	0.08	0.32	0.15
pcc8	-0.52	0.08	0.50	0.15	sat5	-0.30	0.08	0.11	0.15
pcc9	-0.41	0.08	0.24	0.15	sat6	-0.40	0.08	0.33	0.15
pcc10	-0.56	0.08	0.58	0.15	sat7	-0.24	0.08	0.69	0.15
pcc11	-0.39	0.08	0.11	0.15	sat8	-0.47	0.08	0.59	0.15
pcc12	-0.42	0.08	0.19	0.15	sat9	-0.49	0.08	0.72	0.15
pcc13	-0.38	0.08	0.20	0.15					
pcc14	-0.55	0.08	0.56	0.15					

[a] n (level 1) = 1,027; [b] Skewness if a coefficient is < -1 or > -1; [c] Kurtosis if a coefficient is < -1 or > -1

Table 3. Hospital Sample Characteristics [a]

	Sample Frequencies (%)	Population Frequencies* (%)
Hospitals	8(2.49)	(24.45)
Hospital Size		
1. Large	2 (25)	(32.4)
2. Medium	5 (62.50)	(49.2)
3. Small	1 (12.5)	(18.4)

[a] National Statistical Office Of Thailand, 2013

Table 4. Physician Sample Characteristics[a]

Demographic Variables	Categories	Sample Frequencies (%)	Population[b] Frequencies (%)	Demographic Variables	Categories	Sample Frequencies (%)	Population Frequencies (%)
Hospital	A	40 (13.7)	-	Education	Six-year	13 (4.45)	-
	B	55 (18.84)	-		medical school		
	C	9 (3.08)	-		Residency	25 (8.56)	-
	D	29 (9.93)	-		Fellowship	51 (17.47)	-
	E	36 (12.33)	-		Specialization	203 (69.52)	-
	F	30 (10.28)	-	Income	30,000-39,999	2 (.68)	-
	G	55 (18.84)	-		40,000-49,999	2 (.68)	-
	H	38 (13.01)	-		50,000-59,999	2 (.68)	-
Age[c]	18-30	7 (2.4)	(25.98)		60,000-69,999	3 (1.03)	-
	31-40	128 (43.84)	(30.54)		70,000-79,999	6 (2.05)	-
	41-50	83 (28.42)	(17.53)		80,000-89,999	6 (2.05)	-
	51-60	40 (13.7)	(12.81)		90,000-99,999	19 (6.51)	-
	>60	34 (11.64)	(12.8)		100,000-149,999	59 (20.21)	-
Gender	Male	162 (55.48)	(56.30)		150,000-199,999	57 (19.52)	-
	Female	130 (44.52)	(43.70)		>200,000	136 (46.58)	-

[a] n (level 1) = 292

[b] Source for population frequencies: The Medical Council of Thailand

[c] The missing age population percentage was due to the inability to obtain the age information.

Table 5. Patient Sample Characteristics [a]

Demographic Variables	Categories	Sample Frequencies (%)	Demographic Variables	Categories	Sample Frequencies (%)
Hospital	A	71 (6.91)	Reason for	Medical check-up	220 (21.42)
	B	131 (12.76)	hospital visit	Follow-up	566 (55.11)
	C	133 (12.95)		Urgent care	178 (17.33)
	D	116 (11.3)		Other	63 (6.13)
	E	131 (12.76)	Health status	Excellent	16 (1.56)
	F	98 (9.54)		Very good	62 (6.04)
	G	138 (13.44)		good	249 (24.25)
	H	209 (20.35)		Fair	566 (55.11)
Age	18-30	307 (29.89)		Poor	134 (13.05)
	31-40	404 (39.34)	Medical problem	Yes	223 (21.71)
	41-50	187 (18.21)		No	804 (78.29)
	51-60	81 (7.89)	Income	<10,000	63 (6.13)
	>65	48 (4.67)		10,000-19,999	232 (22.59)
Gender	Male	291 (71.67)		20,000-29,999	208 (20.25)
	Female	736 (28.33)		30,000-39,999	125 (12.17)
Education	<Bachelor's degree	219 (21.32)		40,000-49,999	116 (11.3)
	Bachelor's degree	601 (58.52)		50,000-74,999	107 (10.42)
	>Bachelor's degree	180 (17.53)		75,000-99,999	52 (5.06)
	Other	27 (2.63)		100,000-150,000	60 (5.84)
Employment	Government/ State enterprise	78 (7.59)		>150,000	64 (6.23)
	Private company	576 (56.09)			
	Self-employed	273 (26.58)			
	Other	100 (9.74)			

[a] n (level 1) = 292

Table 6. Units in Hospitals [a]

Unit/Hospital	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E	Hospital F	Hospital G	Hospital H
Orthopedic	x	x	x		x	x		x
Dermatology		x					x	
ENT		x				x	x	x
Wellness center			x					
Eye	x	x						
Emergency					x	x		
Diabetes							x	
Heart	x	x				x	x	
Surgery	x	x		x	x	x	x	x
Internal medicine	x	x			x	x	x	
Liver and digestive	x			x	x		x	x
Women's health	x	x		x	x		x	x
Medical checkup						x	x	
Neurology		x					x	x
Urology								x
Pediatrics	x	x	x	x	x		x	x
Oncology						x		
Physical care and Rehab					x		x	
Pulmonary				x				
Spine	x	x			x			x

[a] Blanks refer to “Hospitals do not have the units” or “There were not enough information from the units”

Table 7. Reliability and Intraclass Correlation of the Raw Scales[a]

	α	ICC2*
Job satisfaction	.81	.13
Patient-centered care (physicians)	.92	.10
Patient-centered care (patients)	.95	.65
Collaboration[a]	.85	-
Prior PCC experience[a]	.88	-
Autonomy[a]	.47	-

[a] Individual-level variable

Table 8. Descriptive Statistics for Physicians Variables (Based on Raw Scales)[a]

Variable	N	Minimum	Maximum	Mean	Standard deviation
Job satisfaction	292	2.64	5	4.04	0.42
Patient-centered care	292	1.86	5	4.39	0.43
Collaboration	292	1.8	5	4.21	0.51
Experience	292	2	5	4.34	0.55
Autonomy	292	1.33	5	4.38	0.70

[a] n (level 1) = 292

Table 9. Physician Job Satisfaction Mean and Standard Deviation Compared to Demographic Categories [a]

	Mean	SD		Mean	SD		Mean	SD
Hospital			Gender			Department		
A	3.97	.39	Male	4.03	.43	Orthopedic	4.12	.38
B	4.10	.45	Female	4.04	.41	Dermatology	4.11	.48
C	3.75	.49				Ear, Nose and Throat	4.31	.44
D	3.94	.48	Education			Wellness center	3.58	.11
E	4.02	.35	Six-year	3.87	.32	Eye	4.27	.48
F	4.00	.41	medical school			Emergency	4.18	.38
G	4.01	.44	Residency	4.02	.38	Diabetes	4.09	.42
H	4.23	.41	Fellowship	4.03	.42	Heart	4.05	.38
			Specialization	4.05	.43	Surgery	3.91	.35
Age						Internal medicine	3.99	.53
18-30	4.07	.60	Income			Liver and digestive	4.01	.44
31-40	4.01	.41	30,000-39,999	4.18	.00	Women's health	4.06	.34
41-50	4.06	.43	40,000-49,999	4.18	.71	Medical checkup	3.77	.25
51-60	4.11	.42	50,000-59,999	3.59	.19	Neurology	4.15	.37
>60	4.00	.36	60,000-69,999	3.67	.53	Urology	4.09	.91
			70,000-79,999	3.62	.18	Pediatrics	3.97	.40
			80,000-89,999	3.82	.29	Oncology	3.94	.22
			90,000-99,999	4.02	.44	Physical care and Rehab	3.86	.31
			100,000-149,999	4.10	.45	Pulmonary	4.00	.33
			150,000-199,999	3.97	.41	Spine	4.05	.40
			>200,000	4.08	.41			

[a] n (level 1) = 292; n (level 2) = 66

Table 10. Correlations among Physician Variables[a]

	1	2	3	4	5	6	7	8	9
Control variables									
1. Age	1								
2. Gender	.23	1							
3. Income	.25	.08	1						
Individual-level variables									
4. PCC	.08	-.02	.00	1					
5. Collaboration	-.11	.05	-.07	.03	1				
6. Prior Experience	.04	.03	.10	.14**	-.07	1			
7. Autonomy	-.25	-.00	-.13	.25*	.12*	.14	1		
Unit-level variable									
8. U- PCC	.17	.03	.24	.04*	.01	.07	-.13	1	
Dependent variable									
9. Job satisfaction	.03	-.00	.09	.41**	.31**	.12*	.13*	.04*	1

[a] **p<.01, *p<.05; [b] n (level 1) = 292

Table 11. Results of Confirmatory Factor Analyses for Physician Data

Model	$\chi 2$	df	GFI[a]	CFI[b]	TLI[c]	RMSEA[d]
Model 1: hypothesized 5-factor model	169.54	67	.93	.96	.94	.07
Model 2: 4-factor model (combined PCC experience and autonomy)	190.45	71	.92	.95	.94	.08
Model 3: 4-factor model (combined collaboration and autonomy)	191.45	71	.92	.95	.94	.08
Model 4: 4-factor model (combined collaboration, PCC experience)	455.77	71	.83	.84	.79	.13
Model 5: 3-factor model (combined collaboration, PCC experience, and autonomy)	474.59	74	.82	.83	.79	.14
Model 6: 2-factor model (combined PCC, collaboration, PCC experience, and autonomy	676.43	76	.76	.74	.69	.17
Model 7: 1-factor model (combined all variables)	1008.82	77	.66	.61	.53	.20

[a] GFI = goodness of fit index; [b] CFI= comparative fit index

[c] TLI = Tucker-Lewis index; [d] RMSEA = root mean square effort of approximation

Table 12. Goodness-of-Fit Measures for Confirmatory Factor Analyses (Physician Data) [a]

Goodness-of-Fit Measures	Measurement model with PCC and job satisfaction parcels (autonomy included)	Measurement model with new PCC and job satisfaction parcels (autonomy included)	Measurement model with new PCC and job satisfaction parcels (without autonomy)	Measurement model with common latent factor	Thresholds [b]
Chi-square/df	2.92	2.53	2.36	1.79	<3
CFI	.89	.96	.97	.99	>.95
GFI	.84	.93	.94	.97	>.95
AGFI	.79	.89	.90	.94	>.80
RMSEA	.08	.07	.07	.05	<.10

[a] n (level 1) = 292; n (level 2) = 66; [b] Hair et al, 2010

Table 13. Factor Loadings for Physician Variables

Variables and items	Items loadings	Scale Reliability	Variables and items	Items loadings	Scale Reliability
Patient-centered care		.93	*Collaboration*		.84
Parcel 1	.88		Trust other's decision making ability	.79	
Understand the importance of patient's reason for hospital visit			Respect other's knowledge and skills	.85	
			Collaborate in making shared decisions	.74	
Discuss patient's main problem			*Prior PCC experience*		.88
Patient satisfaction with the discussion			Involve patients in decision making	.89	
Parcel2	.90		Encourage patients to make decision	.88	
Explain problems to patient			*Job satisfaction*		.84
Provide opportunities for patient questions			Parcel1	.79	
Understand patients			Get along with other colleagues from intra unit colleagues		
Parcel3	.83				
Explain treatment to patient			Meet career expectation		
Ask patient's goals for treatment			Parcel2	.88	
Discuss your role and patient's role			Receive support from same-unit colleagues		
Parcel4	.88		Find work personally rewarding		
Know the reason for patient visit			Receive support from intra unit colleagues		
Explore the treatment			Parcel3	.86	
Care for patient			Satisfy with physician career		
Autonomy		.38	Receive professional stimulation from colleagues		
Make decision for patients	.36				
Disregard rules and regulations	.55				

Table 14. Validity of the Factors (Physician Data) [a]

Variables	AVE	MSV	ASV
CFA model with Autonomy			
Job satisfaction	.71	.27	.16
Collaboration	.64	.25	.17
Patient-centered care	.76	.27	.23
Experience	.79	.23	.13
Autonomy	.22	.18	.10
CFA model without Autonomy			
Job satisfaction	.71	.27	.20
Collaboration	.64	.25	.20
Patient-centered care	.76	.27	.25
Prior-PCC Experience	.79	.23	.13
CFA model with CLF			
Collaboration	.45	.05	.03
Patient-centered care	.44	.07	.06
Experience	.66	.07	.04

[a] Source: Hair et al. (2010) ; Thresholds: AVE>.5; MSV<AVE; ASV<AVE

Table 15. Comparison of Standardized Regression Weights between the Models with and without Common Latent Factor (Physician Data) [1]

Item/Parcel		Factor	Without CLF Estimate	With CLF Estimate	Difference[a]
pcc_parcel4	<---	PCC	.89	.73	.16
pcc_parcel3	<---	PCC	.78	.58	.20
pcc_parcel2	<---	PCC	.85	.67	.18
pcc_parcel1	<---	PCC	.86	.72	.14
col5	<---	Collaboration	.74	.60	.14
col4	<---	Collaboration	.86	.74	.12
col3	<---	Collaboration	.79	.70	.09
exp5	<---	Experience	.90	.86	.04
exp4	<---	Experience	.88	.77	.11

[a] Common method bias if the difference is greater than .2

[1] The comparison between the model with CLF and without CLF approach for CMB is specifically explained on StatWiki website by Prof. James Gaskin on http://statwiki.kolobkreations.com/index.php?title=Confirmatory_Factor_Analysis

Table 16. Variance Inflation Factors for Physician Variables

Individual-level variables	VIF[a]	1/VIF
Patient-centered care (PCC)	1.13	.89
Collaboration	1.14	.88
Prior PCC experience	1.08	.93
Autonomy	1.39	.72
Individual-level interactions		
PCC X Collaboration	1.11	.90
PCC X Prior PCC experience	1.04	.97
PCC X Autonomy	1.04	.96
Unit-level variable		
U- PCC (patients)	1.12	.89
Cross-level interactions		
U-PCC X Collaboration	1.03	.97
U-PCC X Prior PCC experience	1.03	.97
U- PCC X Autonomy	1.11	.90

[a] Multicollinearity occurs if VIF > 5

Table 17. Hypotheses

H1a	Patient-centered care initiative will be positively related to physician job satisfaction.
H1b	Patient-centered care initiative will be positively related to patient satisfaction.
H2a	Need for job autonomy will be negatively related to physician job satisfaction.
H2b	The relationship between physician job autonomy and job satisfaction will be more negative the greater the extent of PCC initiatives in a hospital unit.
H3a	Physician collaboration will be positively related to physician job satisfaction.
H3b	The relationship between physician collaboration and job satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.
H4a	Physician prior PCC experience will be positively related to physician job satisfaction.
H4b	The relationship between physician PCC experience and job satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.
H5a	Patient involvement will be positively related to patient satisfaction.
H5b	The relationship between patient involvement and patient satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.
H6a	Functional value will be positively related to patient satisfaction.
H6b	Existential value will be positively related to patient satisfaction.
H6c	The relationship between patient functional value and patient satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.
H6d	The relationship between patient existential value and patient satisfaction will be more positive the greater the extent of PCC initiatives in a hospital unit.

Table 18. Multilevel Regression Results for the Effects of Demographic Variables, Unit-Level Patient-Centered Care and Physician Characteristics on Physician Job Satisfaction

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Step1: Demographics										
1. Age	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2. Gender	-.01	.05	-.00	.05	-.03	.05	-.03	.05	-.03	.05
3. Education										
a. six-year medical School	-.16	.12	-.17	.12	-.15	.11	-.15	.11	-.13	.11
b. Residency	-.05	.09	-.05	.09	-.10	.08	-.10	.08	-.06	.09
c. Fellowship	-.05	.07	-.05	.07	-.07	.06	-.07	.06	-.04	.07
d. Specialization	Omitted									
4. Income	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Step2: Unit-level variable										
5. U-PCC (patient)			.06	.15	.01	.15	-.01	.15	.00	.15
Step3: Physician characteristics										
6. Collaboration					.47***	.08	.46**	.08	.45***	.08
7. Prior PCC experience					.09**	.04	.08**	.04	.07*	.04
8. Autonomy									.06	.04
Step3: Interaction										
10. U-PCC X Collaboration							-.26	.51	-.24	.51
11. U-PCC X Prior Experience							-.19	.21	-.19	.21
12. U-PCC X Autonomy									-.15	.18
Statistics										
Intercept	-.12	.12	-.11	.11	-.17	.10	-.17	.12	-.21*	.12
R-Squared	.02		.02		.14		.14		.15	
Level 1 Variance	.42	.02	.45	.02	.39	.02	.39	.02	.39	.02
Level 2 Variance	.00	.00	.00	.00	.00	.13	.00	.00	.00	.00
Deviance (||D||)	316.50		316.30		278.70		277.64		275.18	
Wald statistics	4.93		5.11***		45.98***		47.2**		50.08***	
Numbers of parameters	6		7		9		11		13	

[a] n (level 1) = 292; n (level 2) = 66; [b] ***p<.001, **p<.05, *p<.10

Table 19. Reliability and Intraclass Correlation Coefficients of the Raw Scales (Patient Data)

	α	ICC2
Patient satisfaction[a]	.86	.64
Patient-centered care	.95	.65
Involvement[a]	.79	-
Existential value[a]	.79	-
Functional value[a]	.81	-

[a] Individual-level variable

Table 20. Descriptive Statistics for Patient Variables (Based on Raw Scales)

Variable	N	Minimum	Maximum	Mean	Standard deviation
Patient satisfaction	1027	1.89	5	4.06	.60
Patient-centered care	1027	1	5	4.12	.54
involvement	1027	1	5	4.35	.60
Existential value	1027	2	5	4.10	.58
Functional value	1027	2.67	5	4.40	.52

[a] n (level 1) = 1,027

Table 21. Patient Satisfaction Mean and Standard Deviation Compared to Demographic Categories

	Mean	SD		Mean	SD		Mean	SD		Mean	SD
Hospital			Gender			Income			Department		
A	4.16	.54	Male	4.03	.56	<10,000	4.07	.60	Emergency	4.20	.63
B	3.86	.59	Female	4.07	.62	10,000-19,999	4.09	.57	Diabetes	4.11	.61
C	4.07	.45				20,000-29,999	4.08	.53	Heart	3.99	.65
D	3.82	.77	Education			30,000-39,999	3.97	.62	Surgery	4.00	.58
E	4.06	.53	<Bachelor's degree	4.06	.56	40,000-49,999	4.09	.55	Internal medicine	4.08	.54
F	4.13	.53	Bachelor's degree	4.04	.58	50,000-74,999	3.99	.58	Liver and digestive	4.04	.58
G	4.25	.48	>Bachelor's degree	4.10	.58	75,000-99,999	3.96	.59	Women's health	4.07	.59
H	4.11	.50	Other	3.96	.45	100,000-150,000	4.12	.60	Medical checkup	4.05	.53
						>150,000	4.03	.58	Neurology	3.92	.76
Age			Employment						Urology	4.43	.48
18-30	4.07	.57	Government/	4.05	.52	Department			Pediatrics	4.13	.55
31-40	4.01	.57	State enterprise			Orthopedic	4.03	.56	Oncology	4.22	.54
41-50	4.05	.56	Private company	4.05	.58	Dermatology	3.81	.63	Physical care and Rehab	4.39	.57
51-60	4.13	.58	Self-employed	4.07	.57	Ear, Nose and Throat	4.19	.54	Pulmonary	4.24	.49
>60	4.19	.63	Other	4.01	.55	Eye	4.07	.42	Spine	4.03	.43

[a] n (level 1) = 1,027

Table 22. Correlations among Patient Variables

	1	2	3	4	5	6	7	8	9
Control variables									
1. Age	1								
2. Gender	.19	1							
3. Income	.27	.12	1						
Individual-level variables									
4. PCC	.01		.10	1					
5. Patient involvement	.04	.07	.03	.04**	1				
6. Existential value	-.01	-.02	.09	.09**	.13**	1			
7. Functional value	.01	-.03	.15	.08**	.22**	.64**	1		
Unit-level variable						.			
8. U-PCC	.04	-.05	.16	.47*	-.04*	.05*	.13*	1	
Dependent variable									
9. Patient satisfaction	.04	-.04	.10	.61**	.08**	.25**	.26**	.39*	1

[a] **p<.01, *p<.05; [b] n (level 1) = 1,027

Table 23. Goodness-of-Fit Measures for Confirmatory Factor Analyses (Patient Data)

Goodness-of-Fit Measures	Measurement model with all individual items with PCC and with PCC and satisfaction parcels	Measurement model with CLF	Measurement model	Thresholds[a]
Chi-square/df	7.04	2.58	2.63	<3
CFI	.89	.99	.99	>.95
GFI	.83	.96	.98	>.95
AGFI	.80	.96	.97	>.80
RMSEA	.08	.04	.04	<.10

[a] Hair et al, 2010

Table 24. Results of Confirmatory Factor Analyses for Patient Data

Model	$\chi 2$	df	GFI[a]	CFI[b]	TLI[c]	RMSEA[d]
Model 1: hypothesized 5-factor model	206.61	80	.98	.99	.99	.04
Model 2: 4-factor model (combined existential and functional)	569.24	84	.92	.96	.95	.08
Model 3: 4-factor model (combined involvement and functional)	621.25	84	.92	.96	.95	.08
Model 4: 4-factor model (combined involvement and existential)	711.75	84	.91	.95	.94	.09
Model 5: 3-factor model (combined involvement, existential and functional)	1239.10	88	.87	.91	.89	.11
Model 6: 2-factor model (combined PCC, involvement, existential, and functional	2660.65	89	.68	.79	.75	.17
Model 7: 1-factor model (combined all variables)	4189.37	90	.60	.66	.60	.21

[a] GFI = goodness of fit index; [b] CFI= comparative fit index

[c] TLI = Tucker-Lewis index; [d] RMSEA = root mean square effort of approximation

Table 25. Factor Analysis Scores for Patient Variables

Variables and items	Items loadings	Scale Reliability	Variables and items	Items loadings	Scale Reliability
Patient-centered care		.96	*Existential value*		.80
Parcel 1	.94		Prefer regular medical checkup	.57	
Discuss main problem			Prefer private discussions with physicians	.78	
Agee with physician's opinion			Participate in discussion with physicians	.90	
Inquire about goal treatment			*Functional value*		.82
Explore treatment			Inquire information from physicians	.88	
Parcel2	.94		Inquire more clarification from physicians	.85	
Acknowledge reason for hospital visit			Prefer competent physicians	.60	
Satisfy with discussion			*Patient satisfaction*		.93
Discuss patient's respective roles			Parcel1	.97	
Encourage to take own role			Clarity of information		
Parcel3	.90		Encouragement to be self-sufficient		
Understand the reason for importance of the visit			Hospital visit		
Explain the problem			Parcel2	.88	
Providing opportunity for questions			Information transfer		
Parcel4	.92		Participation in decision making		
Understand patient			Parcel3	.89	
Explainthe treatment			Personal attention		
Care for patient			Physician expertise		
Involvement		.79	Department visit		
Inform about optional method of treatment	.78				
Acknowlege patient medical history	.84				

Table 26. Validity of the Factors (Patient Data)[a]

Variables	Average Variance Extracted (AVE)	Maximum Shared Variance (MSV)	Average Shared Variance(ASV)
CFA model with PCC and patient satisfaction parcels			
Patient satisfaction	.83	.50	.25
Patient-centered care	.86	.50	.30
Involvement	.65	.30	.20
Existential value	.58	.54	.29
Functional value	.61	.54	.32
CFA model with CLF			
Patient-centered care	.57	.06	.05
Involvement	.45	.10	.06
Existential value	.41	.38	.16
Functional value	.38	.38	.18

[a] Source: Hair et al. (2010); Thresholds: CR>.7; AVE>.5; MSV<AVE; ASV<AVE

Table 27. Comparison of Standardized Regression Weight between the Models with and without Common Latent Factor (Patient Data)

Item/Parcel		Factor	Without CLF Estimate	With CLF Estimate	Difference[a]
pcc_parcel4	<---	PCC	.92	.77	.15
pcc_parcel3	<---	PCC	.90	.73	.17
pcc_parcel2	<---	PCC	.94	.78	.16
pcc_parcel1	<---	PCC	.94	.75	.19
exist3	<---	Existential	.90	.81	.09
exist2	<---	Existential	.78	.64	.14
exist1	<---	Existential	.57	.37	.20
inv2	<---	Involvement	.84	.73	.11
inv1	<---	Involvement	.78	.61	.17
func3	<---	Functional	.60	.37	.23
func2	<---	Functional	.85	.67	.18
func1	<---	Functional	.87	.74	.13

[a] Common method bias if the difference is greater than .2

Table 28. Variance Inflation Factors for Patient Variables

Variable	VIF[a]	1/VIF
U-PCC	1.23	.81
Patient involvement	1.10	.91
Existential value	1.75	.57
Functional value	1.85	.54
Unit-level PCC X Patient involvement	1.18	.85
Unit-level PCCX Existential value	2.22	.44
Unit-level PCCX Functional value	2.17	.46

[a] Multicollinearity occurs if VIF > 5

Table 29. Multilevel Regression Results for the Effects of Demographic Variables, Unit-Level Patient-Centered Care and Patient Characteristics on Patient Satisfaction[a]

	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Step1: Demographic								
1. Age	.00	.00	.00	.00	.00	.00	.00	.00
2. Gender	-.06	.04	-.04	.04	-0.02	.04	-.03	.04
3. Education								
a. <Bachelor's degree	-.06	.05	-.05	.05	-.05	.05	-.06	.05
b. >Bachelor's degree	-.01	.05	-.00	.05	-.00	.05	-.00	.05
c. Others	.08	.12	.08	.12	.07	.12	.06	.12
d. Bachelor's degree	Reference category							
4. Income	.00	.00	.00	.00	.00	.00	-.00	.00
5. Employment								
a. Government/ State Enterprise	.05	.07	.05	.07	.04	.07	.03	.07
b. Self-employed	.14**	.04	.14**	.04	.14	.04	.13	.04
c. Other	.16**	.07	.16**	.07	.17	.06	.17	.06
d. Private company	Reference category							
6. Reason for the visits								
a. Medical check-up	-.03	.05	-.03	.05	-.02	.05	-.02	.04
b. Urgent care	-.15**	.05	-.12**	.05	-.11	.05	-.11	.05
c. Other	-.19**	.08	-.18**	.08	-.17	.07	-.17	.07
d. Follow-up	Reference category							
7. Health status								
a. Excellent	.00	.14	-.00	.14	.06	.14	.05	.13
b. Very good	.08	.08	.06	.08	.02	.08	.01	.08
c. Good	-.07*	.04	-.08*	.04	-.09	.04	-.10	.14
d. Poor	.21***	.06	.21***	.06	.19	.05	.19	.05
e. Fair	Reference category							
8. Medical problem	.07	.05	.06	.05	.04	.05	.05	.04
Step2: Unit-level variable								
9. U-PCC			1.08***	.27	1.11***	.25	1.08***	.26
Step3: Individual-level variables								
10. Patient Involvement					.10**	.05	.10*	.05
11. Existential value					.16**	.04	.15***	.04
12. Functional value					.42**	.15	.43**	.12
Step4: Cross-level interaction								
13. U-PCC X Patient Involvement							.02	.54
14. U-PCC X Existential value							.44	.58
15. U-PCC X Functional value							2.27	1.41
Intercept	-.08	.08	-.09	.08	-.08	.07	-.08	.07
R-Squared	.07		.20		.25		.26	
Level 1 Variance	.54	.03	.54	.01	.52	.01	.52	.01
Level 2 Variance	.23**	.01	.20***	.03	.18***	.03	.18	.03
Deviance (||D||)	1742.64		1722		1654.98		1648.18	
Wald statistics	57.09***		76.60***		155.66***		162.19***	
Numbers of parameters	17		18		21		24	

[a] n (level 1) = 1,027; n (level 2) = 66; [b] ***p<.001, **p<.05, *p<.10

Table 30. Multilevel Regression Results for the Effects of Demographic Variables, Individual-Level Patient-Centered Care and Physician Characteristics on Physician Job Satisfaction[a]

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Step1: Demographics										
1. Age	.00	.00	-.00	.00	.00	.00	.00	.00	.00	.00
2. Gender	-.01	.05	.00	.05	-.02	.04	-.02	.04	-.02	.04
3. Education										
a. six-year medical School	-.16	.12	-.16	.11	-.14	.10	-.14	.10	-.14	.10
b. Residency	-.05	.09	-.02	.08	-.05	.08	-.06	.08	-.06	.08
c. Fellowship	-.05	.07	-.03	.06	-.05	.06	-.06	.06	-.06	.06
d. Specialization	Omitted									
4. Income	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Step2: Individual-level variables										
5. Patient-centered care			.58***	.08	.55***	.07	.56***	.07	.56***	0.08
6. Collaboration					.44***	.07	.45***	.07	.46***	.08
7. Prior PCC experience					.47	.04	.04	.04	.04	.03
8. Autonomy									-.02	.04
Step3: Interaction										
10. PCC X Collaboration							-.15	.20	-.16	.20
11. PCC X Prior Experience							-.16	.12	-.16	.12
12. PCC X Autonomy									.02	.07
Statistics										
Intercept	-.12	.12	-.06	.11	-.13	.10	-.12	.10	-.10	.11
R-Squared	.02		.18		.28		.28		.28	
Level 1 Variance	.42	.02	.38	.02	.35	.02	.36	.02	.36	.02
Level 2 Variance	.00	.00	.00	.00	.02	.13	.00	.00	.00	.00
Deviance (||D||)	316.5		263.52		226.68		224.29		223.91	
Wald statistics	4.93		64.01***		111.72***		115.20**		115.73***	
Numbers of parameters	6		7		9		11		13	

[a] n (level 1) = 292; n (level 2) = 66; [b] ***p<.001, **p<.05, *p<.10

Table 31. Multilevel Regression Results for the Effects of Demographic Variables, Individual-Level Patient-Centered Care and Patient Characteristics on Patient Satisfaction [a]

	Model 1		Model 2		Model 3		Model 4	
	β	SE	β	SE	β	SE	β	SE
Step1: Demographics								
1. Age	.00	.00	.00	.00	.00*	.00	.00*	.00
2. Gender	-.06	.04	-.07*	.03	-.05	.03	-.05	.03
3. Education								
a. <Bachelor's degree	-.06	.05	-.05	.04	-.06	.04	-.06*	.04
b. >Bachelor's degree	-.01	.05	-.04	.04	-.05	.04	-.04	.04
c. Others	.08	.12	.15	.10	.13	.10	.13	.09
4. Income	.00	.00	.00	.00	-.00	-.00	-.00	-.00
5. Employment								
a. Government/ State Enterprise	.05	.07	-.08	.06	-.08	.05	-.06	.05
b. Self-employed	.14**	.04	.06*	.04	.05*	.04	.06*	.03
c. Other	.16**	.07	.07	.05	.08	.05	.08	.05
6. Reason for the visits								
a. Medical check-up	-.03	.05	-.05	.04	-.05	.04	-.05	.04
b. Urgent care	-.15**	.05	-.12**	.04	-.12**	.04	-.12**	.04
c. Other	-.19**	.08	-.13**	.06	-.13**	.06	-.14**	.06
7. Health status								
a. Excellent	.00	.14	-.06	.12	-.00	.11	.03	.11
b. Very good	.08	.08	.08	.07	.04	.06	.02	.06
c. Good	-.07*	.04	-.01	.04	-.02	.04	-.03	.03
d. Poor	.21***	.06	.17***	.05	.14**	.04	.14**	.04
8. Medical problem	.07	.05	.03	.04	.00	.04	-.01	.04
Step2: Individual-level variables								
9. Patient-centered care			.90***	.04	.88***	.04	.82***	.04
10. Involvement					.03	.04	.05	.04
11. Existential					.09**	.04	.10**	.04
12. Functional					.50***	.10	.57***	.10
Step4: Interaction								
13. PCC X Involvement							.25***	.06
14. PCC X Existential							.22**	.10
15. PCC X Functional							.56**	.26
Statistics								
Intercept	-.08	.08	-.07	.06	-.06	.06	-.05	.06
R-Squared	.07		.40		.45		.47	
Level 1 Variance	.54	.03	.45	.01	.46	.01	.43	.01
Level 2 Variance	.23**	.01	.13***	.02	.11***	.02	.10***	.02
‖D‖	1742.64		1324.50		1251.00		1205.15	
Wald Chi-Square	57.09***		624.40***		758.74***		848.06***	
df	17		18		21		24	

[a] n (level 1) = 1,027; n (level 2) = 66; [b] ***p<.001, **p<.05, *p<.10

Table 32. Fixed Effects of Demographic Variables, Individual-Level Patient-Centered Care and Physician Characteristics on Physician Job Satisfaction[a]

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Step1: Demographics										
1. Age	.00	.00	-.00	.00	-.00	.00	-.00	.00	-.00	.00
2. Gender	-.06	.06	-.02	.06	-.04	.06	-.04	.06	-.04	.06
3. Education										
a. Medical School	-.06	.15	.10	.14	.13	.13	.13	.13	.11	.13
b. Residency	.07	.11	.03	.10	.03	.09	.03	.09	.01	.09
c. Fellowship	.06	.10	.05	.09	.01	.08	.01	.08	.00	.09
4. Income	.00	.00	.00	.00	.00	.00	.00	.00	.00*	.00
Step2: Independent variables										
5. Patient-centered care			.58***	.09	.57***	.08	.56***	.08	.59***	.08
6. Collaboration					.45***	.08	.47***	.09	.47***	.08
7. Prior Experience					.04	.04	.04	.04	.04	.04
8. Autonomy									-.08	.05
Step3: Interaction										
10. PCC X Collaboration							-.16	.23	-.16	.23
11. PCC X Prior Experience							.03	.14	.03	.14
12. PCC X Autonomy									-.03	.09
Statistics										
Intercept	-.22	.19	-.14	.18	-.12	.17	-.13	.17	-.13	.17
R-Squared	.00		.14		.26		.26		.24	
Sigma u	.24		.25		.21		.21		.22	
Sigma e	.42		.38		.36		.36		.36	
F	.59		7.02***		9.37***		7.66		6.69	
df	6		7		9		11		13	
n	220		219		217		215		213	

[a] n (level 1) = 292; n (level 2) = 66; [b] ***p<.001, **p<.05, *p<.10

Table 33. Fixed Effects of Demographic Variables, Individual-Level Patient-Centered Care and Patient Characteristics on Patient Satisfaction [a]

	Model 1		Model 2		Model 3		Model 4	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Step1: Demographics								
1. Age	.00	.00	.00	.00**	.00**	.00	.00**	.00
2. Gender	-.05	.04	-.07	.04	-.05	.04	-.05	.04
3. Education								
a. <Bachelor's degree	-.05	.05	-.05	.04	-.06	.04	-.06	.04
b. >Bachelor's degree	-.03	.05	-.06	.05	-.06	.04	-.06	.04
c. Others	.00	.13	.08	.11	.06	.11	.05	.10
4. Income	.00	.00	-.00	.00	-.00	.00	.00*	.00
5. Employment								
a. Government/State Enterprise	.04	.07	-.08	.06	-.10*	.06	-.08	.06
b. Self-employed	.11**	.05	.05	.04	.05	.04	.05	.04
c. Other	.13*	.07	.06	.06	.07	.06	.07	.06
6. Reason for the visits								
a. Medical check-up	-.02	.05	-.04	.04	-.05	.04	-.05	.04
b. Urgent care	-.14**	.06	-.11	.05**	-.10**	.05	-.10**	.05
c. Other	-.26**	.08	-.17	.07**	-.17**	.07	-.17**	.07
7. Health status								
a. Excellent	.01	.15	-.09	.12	-.04	.12	-.00	.12
b. Very good	.05	.08	.07	.07	.04	.07	.02	.07
c. Good	-.06	.05	-.01	.04	-.02	.04	-.02	.04
d. Poor	.19**	.06	.16	.05**	.14**	.05	.14**	.05
8. Medical problem	.06	.05	.02	.04	.01	.04	-.01	.04
Step2: Independent variables								
6. Patient-centered care (PCC)			.85***	.05	.83***	.04	.78***	.04
7. Involvement					.08*	.04	.08*	.04
8. Existential					.11**	.11	.12**	.04
9. Functional					.40***	.04	.47***	.11
Step4: Interaction								
10. PCC X Involvement							.18**	.07
11. PCC X Existential							.23**	.28
12. PCC X Functional							.54*	.11
Statistics								
Intercept	-.07	.08	-.08	.06	-.06	.06	-.05	.06
R-Squared	.06		.40		.44		.46	
Sigma u	.37***		.28***		.26***		.26**	
Sigma e	.54		.45		.44		.43	
F	2.57***		25.60***		26.20***		25.25***	
df	17		18		21		24	
n	900		899		896		893	

[a] n (level 1) = 1,027; n (level 2) = 66; [b] ***p<.01, **p<.05, *p<.10

4.9 FIGURES

Figure 2. Scatter plot for homoscedasticity of physician data

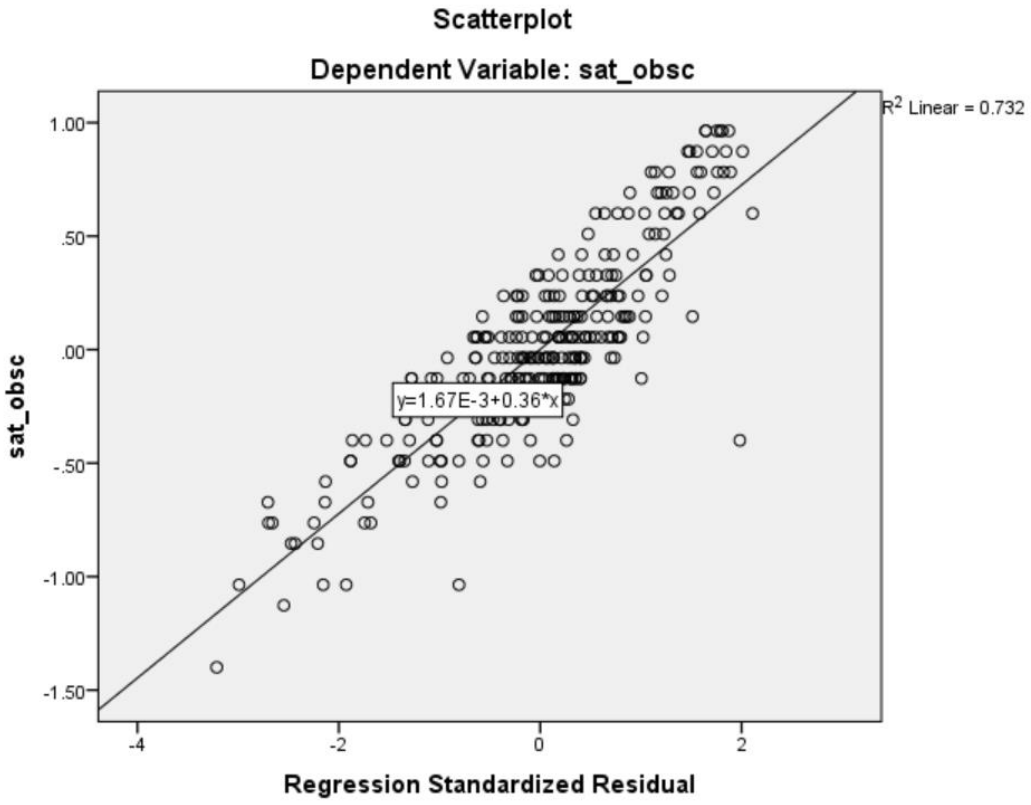


Figure 3. Scatter plots for homoscedasticity of patient data

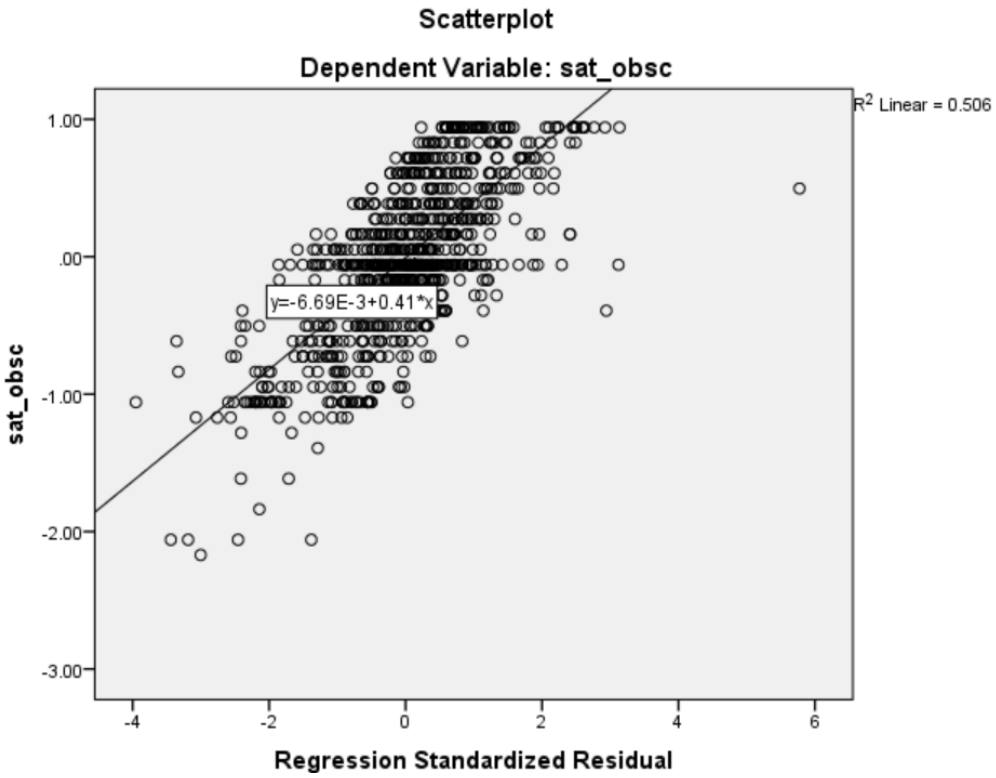


Figure 4. Measurement model with PCC and job satisfaction parcels (autonomy included)

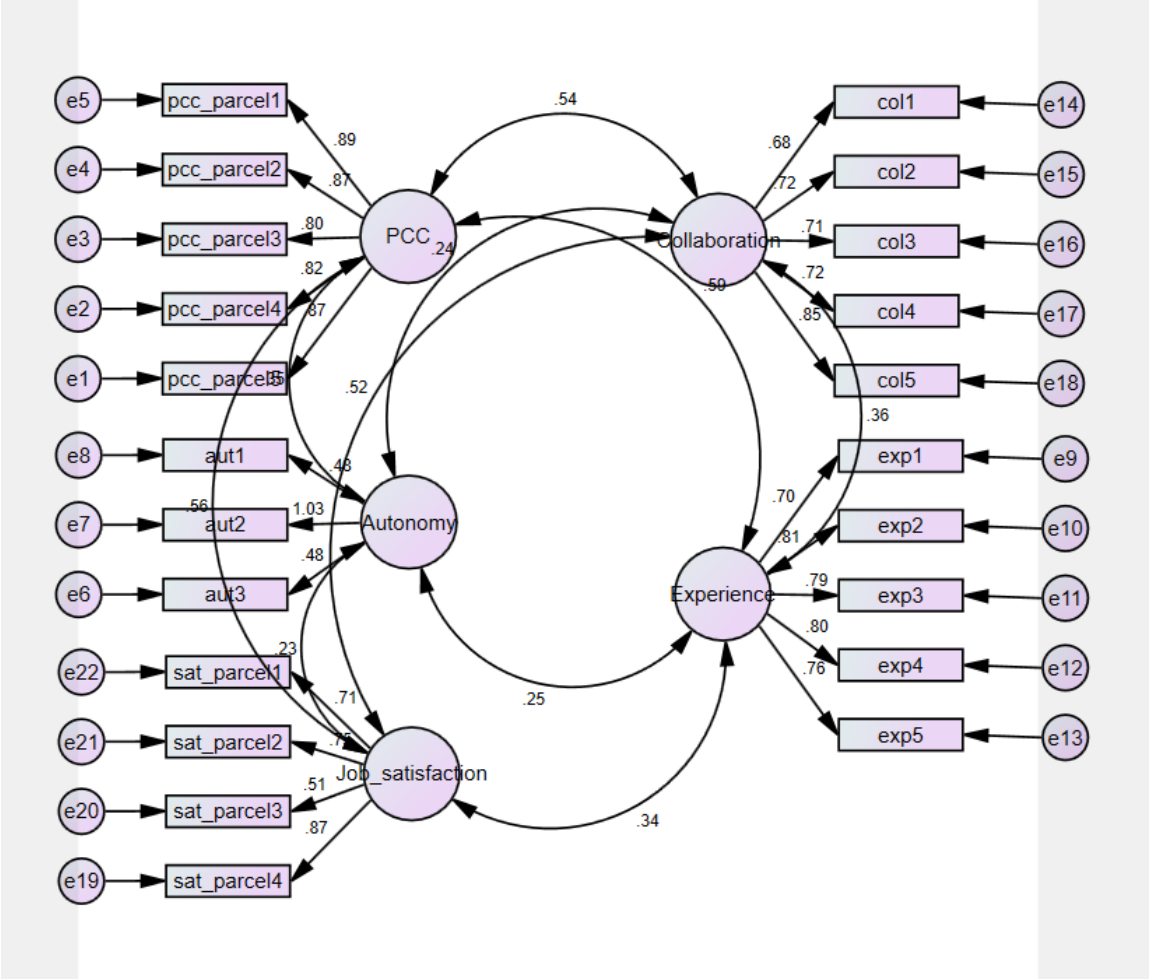


Figure 5. Measurement model with new PCC and job satisfaction parcels excluding some collaboration and prior PPC experience items (autonomy included)

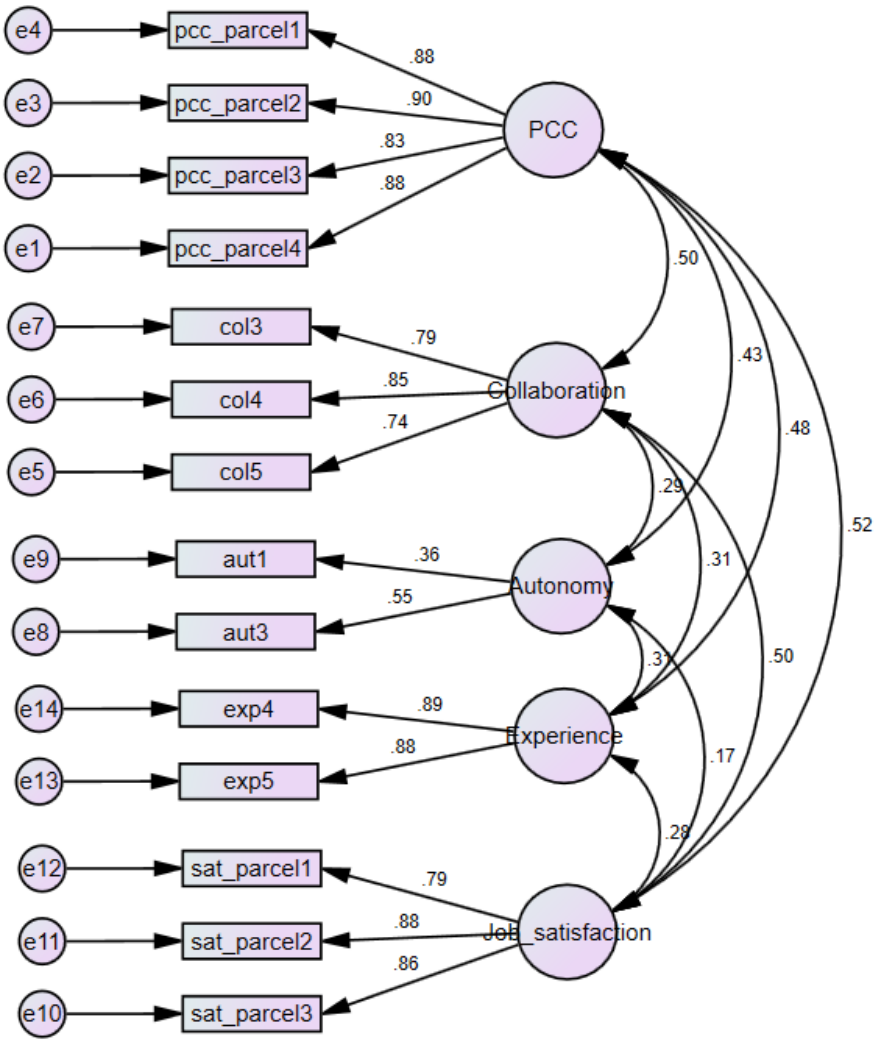


Figure 6. Measurement model with new PCC and job satisfaction parcels excluding some collaboration and prior PCC experience items (without autonomy)

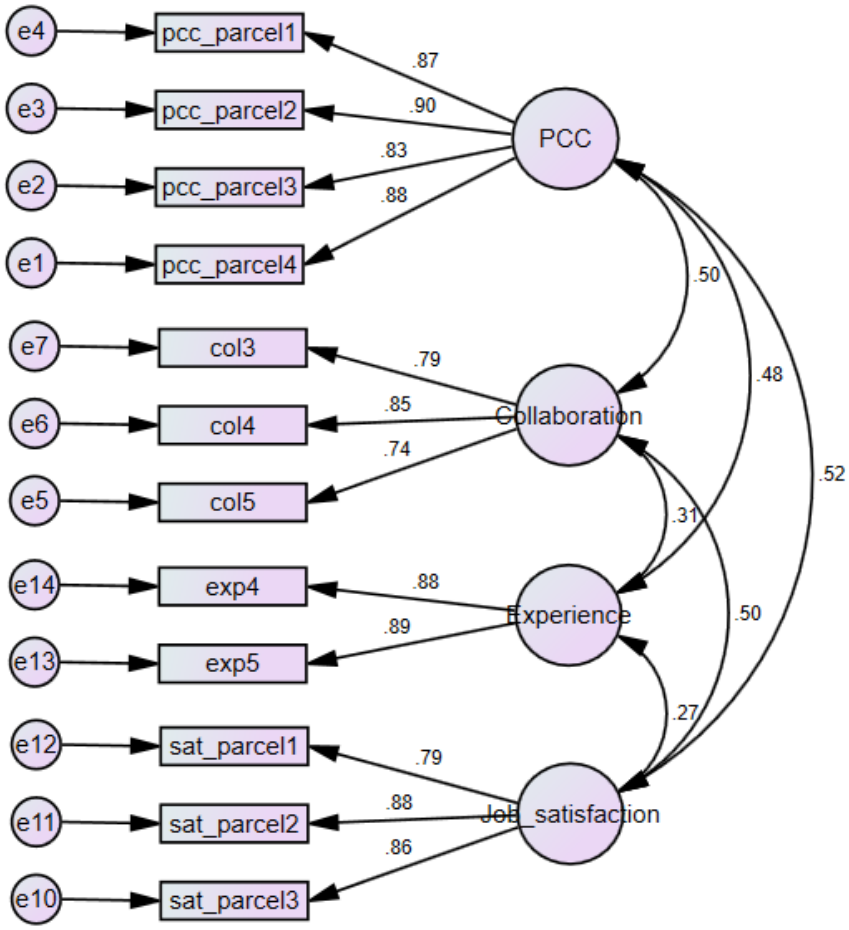


Figure 7. Measurement model with common latent factor (physician data)

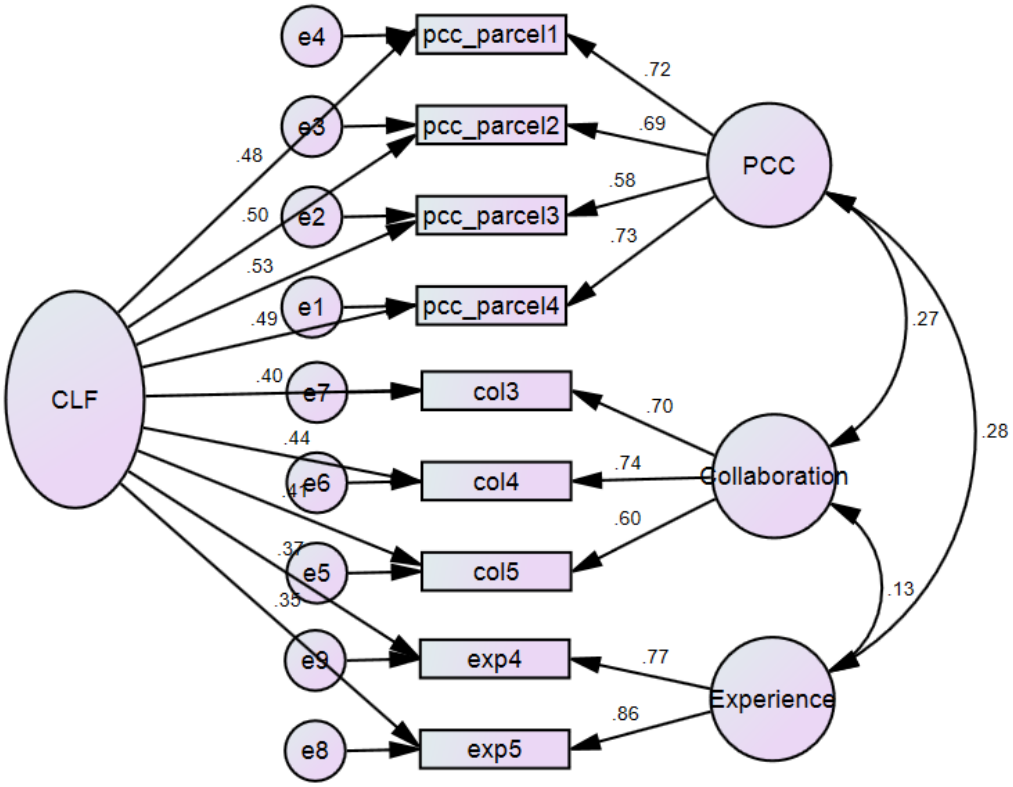


Figure 8. Measurement model with all individual items included (patient data)

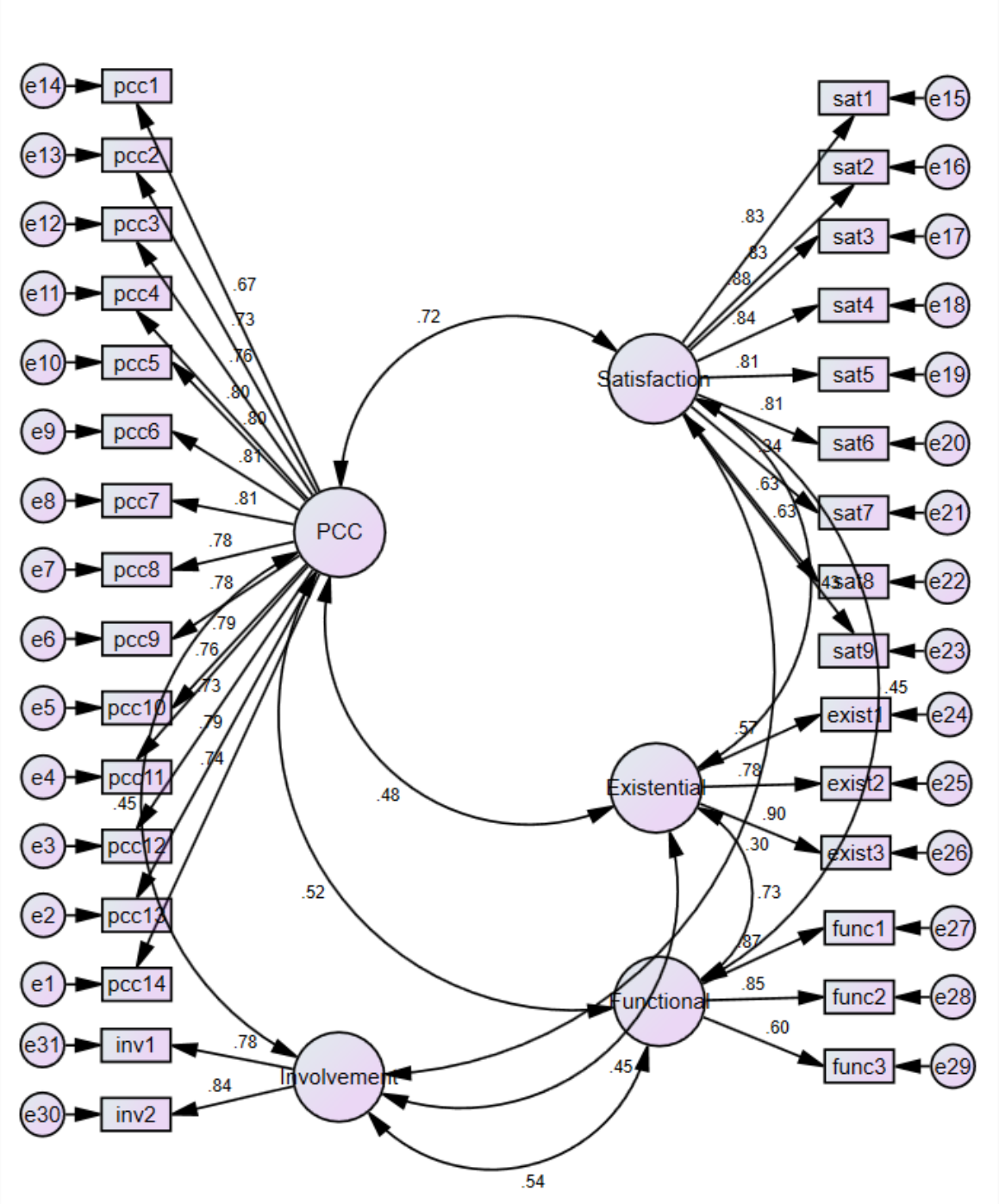


Figure 9. Measurement model with PCC and patient satisfaction parcels (patient data)

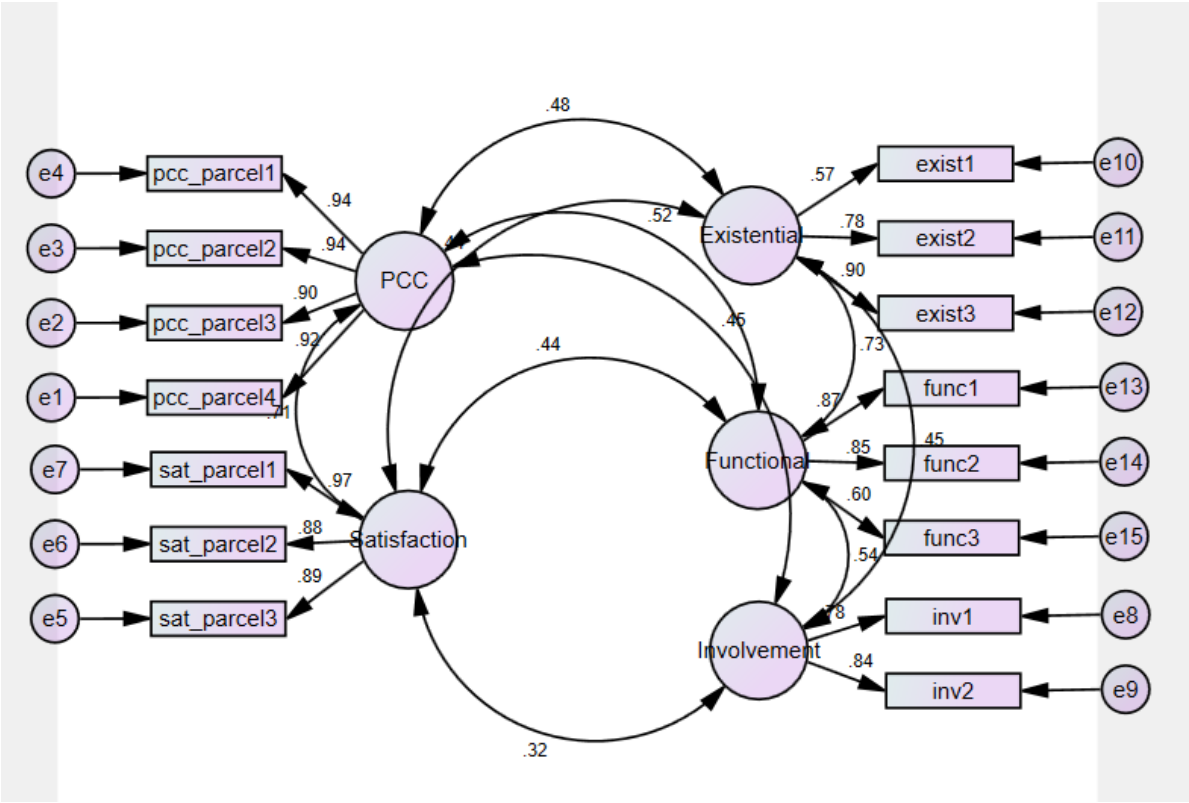


Figure 10. Measurement model with common latent factor (patient data)

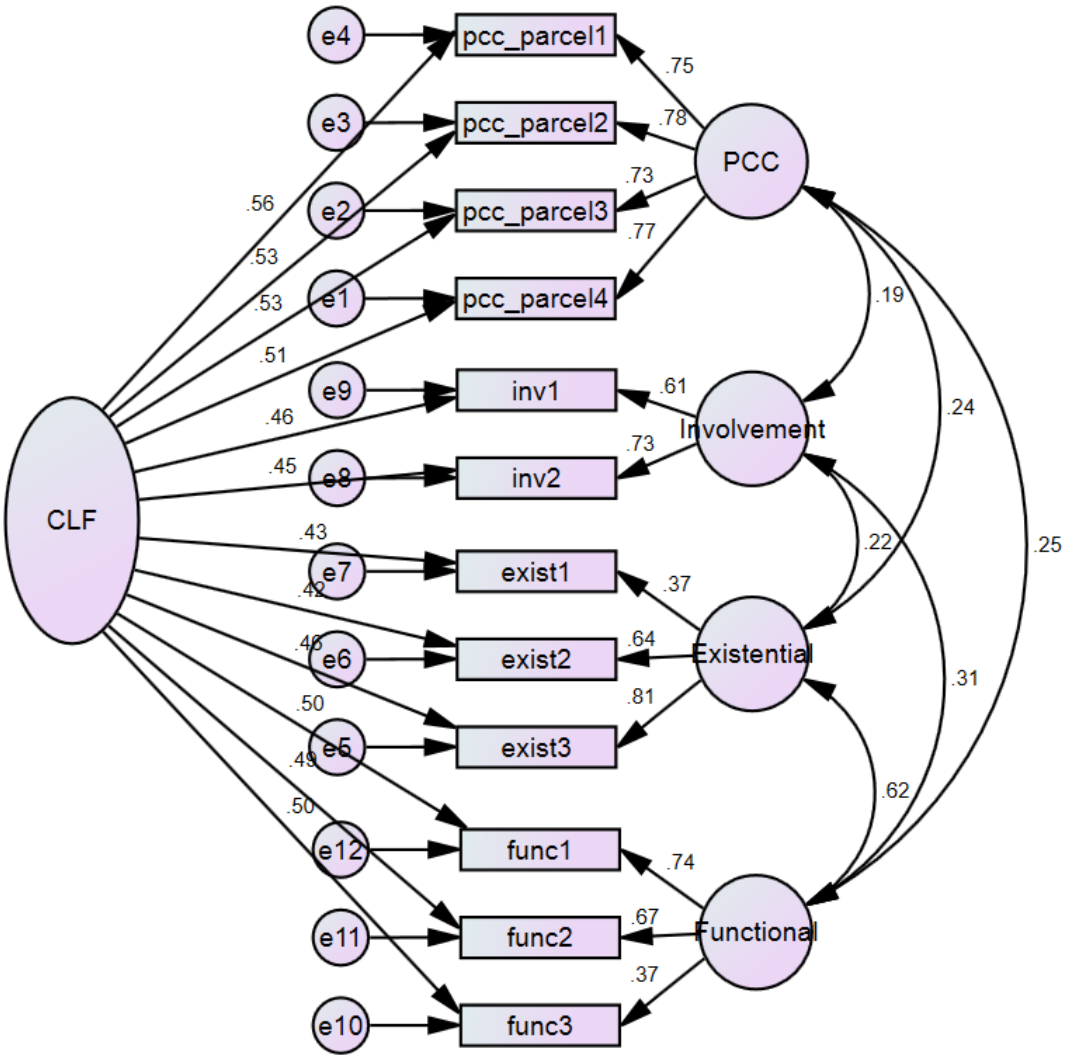


Figure 11. Patient-centered care as a moderator of the relationship between patient involvement and patient satisfaction

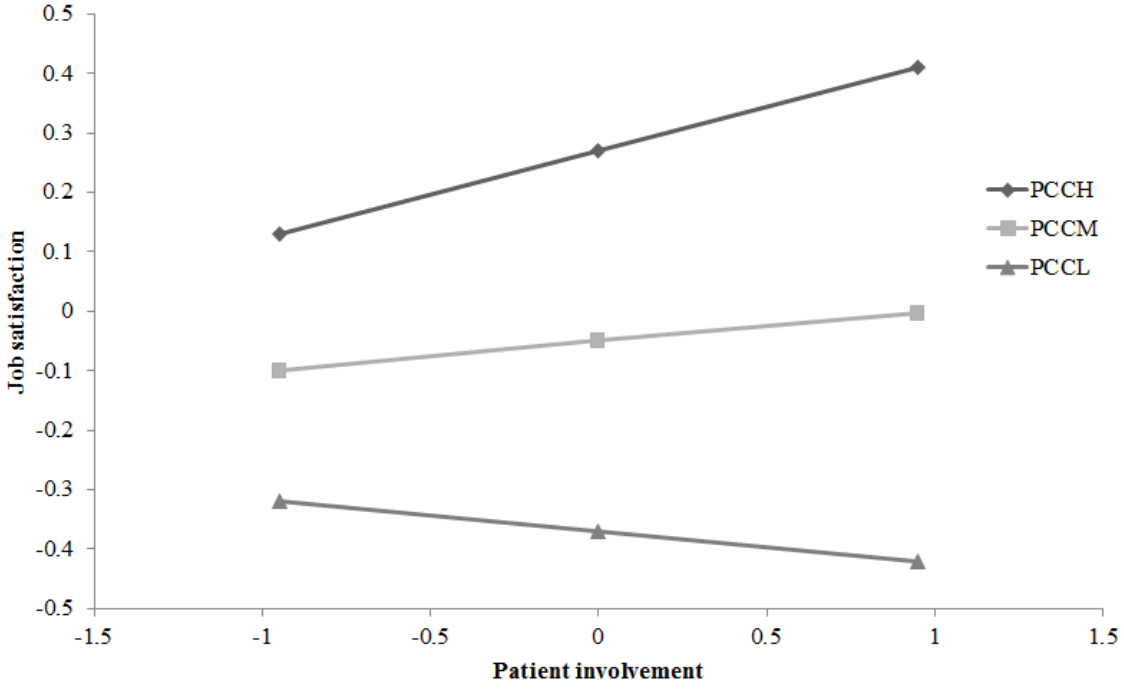


Figure 12. Patient-centered care as a moderator of the relationship between existential value and patient satisfaction

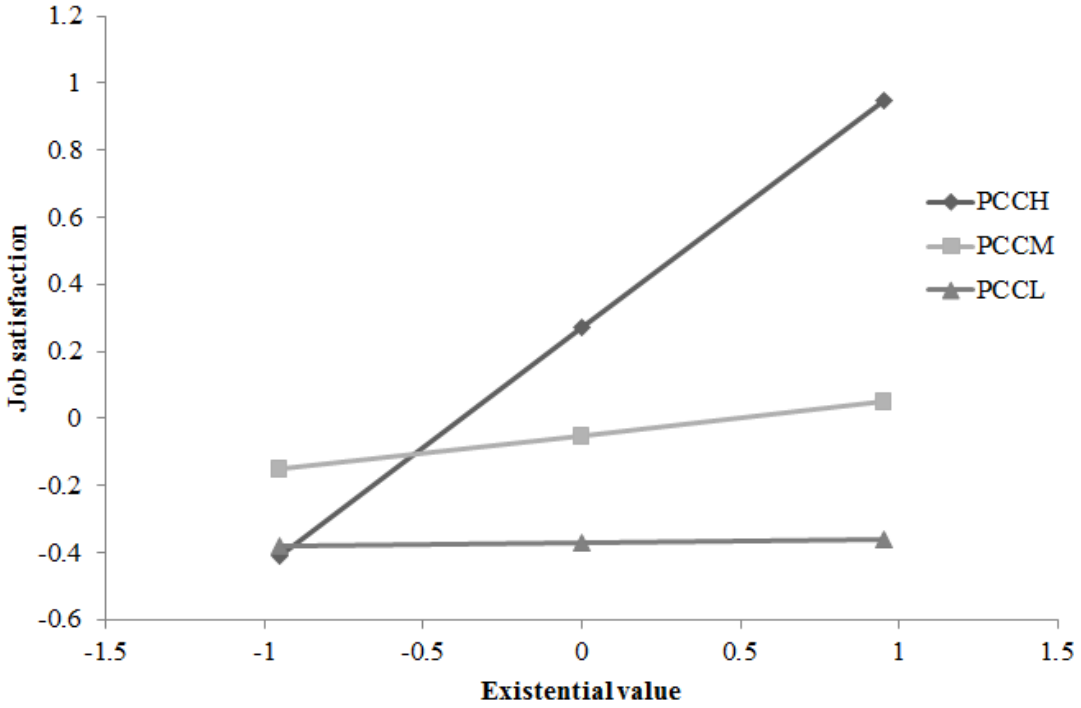
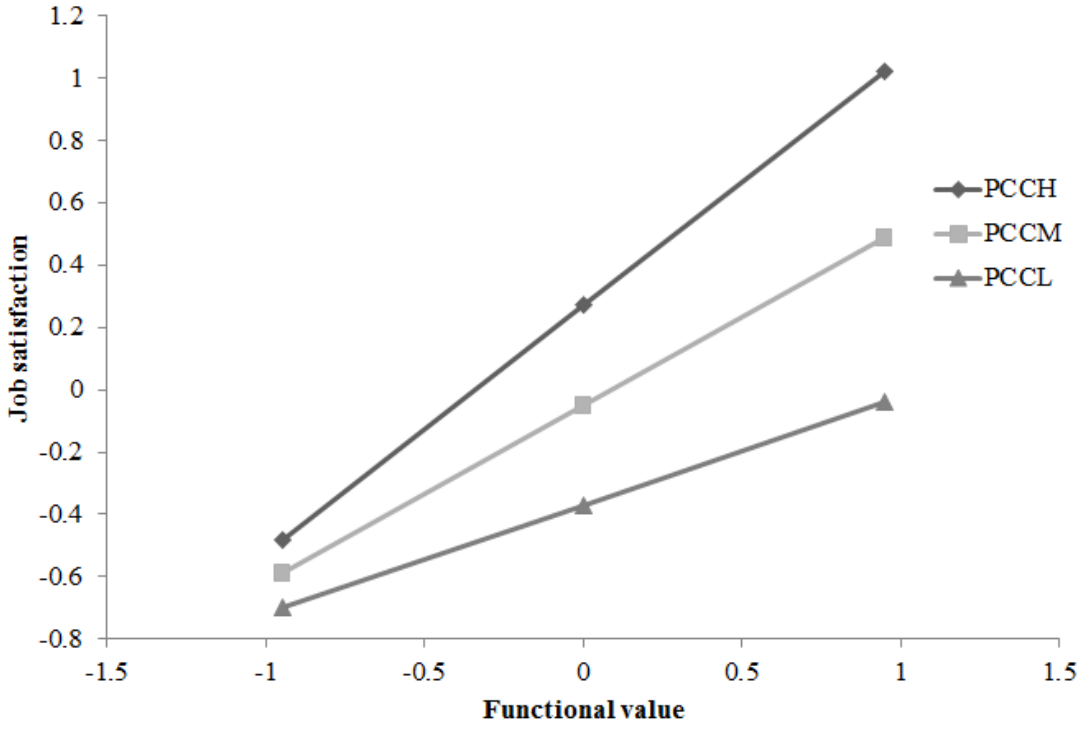


Figure 13. Patient-centered care as a moderator of the relationship between functional value and patient satisfaction



CHAPTER 5

CONCLUSION

This chapter revisits the purposes for this study, and summarizes the procedures used in the investigation. Then, results of the study are briefly stated, followed by post-hoc analyses which were conducted to provide support for some of the findings in Chapter 4 and to see the relationships that were not specified in the models. Later, the theoretical and practical implications of the results are discussed. Finally, limitations are addressed and suggestions are provided for future research in the areas of organizational culture and patient-centered care.

5.1 RESTATEMENT OF THE PROBLEM

Based on the discussion in Chapter One and Two, organizational researchers tend to explain employee attitudes and behavior from either organizational characteristics or individual characteristics. Many researchers agree that both perspectives should be taken into account in terms of person-culture fit in order to sufficiently explain behavior in organizations (Caldwell and O'Reilly, 1990; Chatman, 1989; O'Reilly et al., 1991; Wilkins and Ouchi, 1983). This study focused on individual characteristics that were driven by professional values, including collaboration and the need for autonomy in explaining attitudes in organizations. Specifically, this study examined whether the compatibility between the patient-centered care initiative and physician characteristics have contributed to the explanation of physician job satisfaction. In parallel with the physician study,

the compatibility between patient characteristics, driven by patient values and patient-centered care, was examined in order to determine its contribution to the explanation for patient satisfaction.

5.2 SUMMARY OF PROCEDURES

The study included two parts: the analyses of physician data and patient data. The population for the study consisted of physicians and patients in private hospitals in Thailand. Physician and patient surveys were distributed at eight hospitals with the help of the hospital employees. The final sample included 292 physicians and 1,027 outpatients from eight hospitals. The sample and population characteristics for physicians can be compared favorably, while there was a lack of information for outpatients. The intra-class correlation coefficients were assessed to determine if individual-level observations can be aggregated into the department level. Confirmatory factor analyses were conducted in both physician data and patient data to determine the factor structure. Physician factors included physician PCC, collaboration, prior PCC experience and autonomy, while patient factors included patient PCC, involvement, existential value and functional value. Common method biases were assessed by using Harman's single factor test and the common latent factor method. Multi-level analyses were used to investigate the effect of PCC and other independent variables on the dependent variables. Later, interview responses were reviewed for agreements in the PCC initiative.

5.3 CONCLUSION AND DISCUSSION

The patient-centered care initiative (PCC), a practice that focused on patient needs, has been widely adopted among hospitals in western countries. Prior studies found a positive relationship between PCC and job satisfaction among healthcare professionals, nurses in particular. However, physicians play an important role in implementing PCC, and it is also important to pay attention to physician attitudes. Likewise, patients' attitudes towards the PCC initiative are also important as they determine their future hospital visits. This study attempted to understand the relationship between PCC, physician job satisfaction and patient satisfaction by focusing on the compatibility between PCC, physician characteristics and patient characteristics.

Theoretically, in the PCC initiative, physicians' prior PCC experience and two physician variables: the need for autonomy and collaboration, are found to be related to physician job satisfaction. If PCC is present, physicians with prior PCC experience and high collaboration will be more satisfied with their jobs. This is because physicians with prior PCC experience understand and know what to expect when hospitals have implemented the PCC initiative. In addition, physicians who prefer to collaborate with other physicians will tend to have a higher level of job satisfaction because PCC is the practice that promotes collaboration between healthcare professionals. In contrast, physicians who need more autonomy will have lower job satisfaction in the PCC setting because the PCC system has transferred the decision making authority to patients.

The results supported the hypotheses on the effects of collaboration and prior PCC experience on physician job satisfaction. Consistent with the hypotheses, the relationship

between the U-PCC and job satisfaction, and the need for autonomy and job satisfaction, are not significant. There are four possible explanations for the insignificant results. First, it is possible that patients and physicians have different ideas about PCC; thus, when using patient U-PCC as a proxy for physician U-PCC, the relationship was insignificant. When physician individual-level PCC was used in the post hoc analyses, the relationship was significant. Second, the survey was collected by hospital employees and because autonomy is a sensitive issue the hospitals, physicians may not have provided true information, as they were afraid that the information would be revealed to the hospital managers. Third, the autonomy scale is not well developed. Although it included four items at the beginning, two of the items were dropped due to the low reliability of the scales. Finally, the study used the manifest autonomy variable without screening for the common method bias which can affect the results.

When using both individual-level PCC and unit-level PCC, the results did not support the hypotheses that the PCC initiative would moderate the relationship between prior physician PCC experience, the need for autonomy, collaboration and job satisfaction. In other words, with or without the PCC initiative, the relationship between the variables will remain the same. The unsupported hypotheses can be explained by the intra-class correlation coefficients (ICC (2)). The ICC (2) indicated that patients agree somewhat on PCC but whether or not they understood the term is still questionable. Meanwhile physicians do not have an agreement on the idea of PCC across departments which would affect the results found in patient analyses.

For patients, hypothetically, the PCC initiative and patient characteristics were found to be related to patient satisfaction. The PCC initiative was implemented hospitals to satisfy patient

needs and achieve better patient outcomes. If PCC is present, patients who have a high level of involvement, existential value and functional value would have a higher level of patient satisfaction. This is because the PCC initiative promotes patient involvement, communication between patients and healthcare professionals. The physician-patient communication will help with enhancing their relationship and allowing patients to see the physician's ability and competency. The results supported the hypotheses on the effects of the PCC initiative and patient characteristics on patient satisfaction. At the beginning, involvement was a four-item scale; two of the items were dropped due to low reliability. The results did not support the hypotheses that the PCC initiative would moderate the relationship between patient characteristics and satisfaction.

5.4 IMPLICATIONS

This research attempted to understand the effects of organizational initiatives, specifically PCC, on employee job satisfaction and consumer satisfaction in healthcare units. The main theoretical contribution of this research lies in its focus on the physician profession. While much of the research on PCC is limited to nurse satisfaction, much less has focused on understanding the effect of PCC on physician job satisfaction. The findings show that the U-PCC was relatively unimportant in determining job satisfaction. It suggests that in order to understand the effect of PCC, research on PCC can focus on individual factors, including physicians' perceptions of PCC and their characteristics, such as collaboration and prior-PCC experience. A key contribution of this research relates to the findings that patient characteristics, including patient involvement, patient existential value and patient functional value, are positively related to patient satisfaction. The results suggest that patients who prefer high involvement,

relationships and effectiveness, have a higher level of satisfaction. Another contribution of this study relates to the PCC initiative. In order for a practice to transform into a group or organizational culture, employees in organizations have to share positive experience together (Schein, 1985). PCC has only been in focus recently; thus, it is not at the stage of transforming into an organizational culture. The finding shows the incongruence in the understanding of PCC, particularly in physicians.

For practice, several contributions for hospital management are offered. First, the PCC initiative did not have an effect on physician job satisfaction but it is how physicians perceived PCC that affects their satisfaction. Thus, the management team can consider communicating the idea of PCC to their employees. Hospital management also has to pay attention to physicians' characteristics, including their collaboration and prior-PCC experience, as they were found to enhance physician satisfaction. The finding in the physician study was inconsistent with the concept of PCC in terms of the relationship between collaboration and PCC. Since collaboration was found to be unrelated to PCC, it is important that collaboration is promoted, while at the same time implementing PCC in hospitals. The hospital management also has to pay attention to physician needs for autonomy because if PCC has an effect on the relationship between autonomy and job satisfaction, the hospital management will have to customize the PCC practice for physicians, which will create more complications for the PCC implementation.

The findings from patient analyses also offer some meaningful implications to the hospital management. First, the data reinforces the effect of PCC on patient satisfaction. A higher-level of PCC can lead to higher-level job satisfaction. The results found existential value

and functional value also affect patient satisfaction, with higher scores for functional value. The hospitals may want to pay more attention to physician competency without disregarding the relationship between patients and physicians in order to attain higher patient satisfaction.

5.5 LIMITATIONS

There are at least three limitations in the study that are apparent. The first limitation of the study is that the researcher was not allowed to distribute the surveys to physician respondents. They were distributed by the hospital employees, which cannot assure the randomness and anonymity of the samples. Physicians may not wish to participate in the study as they were afraid that the information would be exposed to the hospital managers. Even if they made the decision to participate in the study, they may not have provided the accurate information. For example, the autonomy scale could be contaminated because the items explicitly ask how they feel about autonomy. If the hospital managers find out, the physicians will be watched for their future behavior. Thus, physicians may not give the true information. The surveys were also filled by only cooperative physicians who would be likely to have high cooperation.

The second limitation is that it was not possible to obtain the within-unit response rate. The information obtained may not have come from everyone in the departments, which limited the representativeness of the sample. Finally, since the data was collect only in private hospitals in Bangkok, Thailand, the results from this study cannot be generalized to any public hospitals and private hospitals located outside of Bangkok. The results from the physician study can only be generalized with physicians with their specialization because the majority of respondents are

in “specialization” category of education. For the patient study, the majority of respondents received a bachelor’s degree or higher, which can be expected in private hospitals that target middle-class people. Thus, the results can be different in hospitals that target different groups of people.

5.6 RECOMMENDATIONS FOR FUTURE RESEARCH

The study investigated the influences of the compatibility between the PCC initiative, physician and patient characteristics, on physician job satisfaction and patient satisfaction. The results from the analyses suggested additional research topics and questions.

5.6.1 This study only collected the sample in private hospitals, so future research could incorporate public hospitals in Bangkok in order to compare the effects of PCC based on types of hospitals. Future research could also be performed at different locations to see if the effect of PCC on the relationship will vary from the results of this study

5.6.2 This study was not able to find the direct effect of PCC on physician job satisfaction. Future research can focus on other physician characteristics that would help in explaining the relationship between PCC and physician job satisfaction, such as physician empathy and solidarity within the unit.

5.6.3 This study only used the interaction between the PCC initiative and independent variables in explaining the dependent variables. Future study can assess values of fits between the PCC initiative and physician characteristics; and values of fits between the PCC initiative and patient

characteristics based on Chatman (1991) regarding the relationship between physician job satisfaction and patient satisfaction.

5.6.4 The research on professional-culture fit can be improved with a longitudinal analysis. Longitudinal data can capture the long-term effects of the fits on physician attitudes and behavior. For example, the effect of culture change on job satisfaction can be analyzed with a series of data.

5.6.5 This study was mainly focused on the quantitative part. Future research can incorporate a qualitative study in parallel with this study in order to determine the consistency of the results. This can be done by interviewing physicians and patients and find patterns of responses to determine the relationship between the PCC initiative, the independent variables and dependent variables

5.6.6 In this study, the surveys were not distributed pair wise between physicians and patients. Future research can make more attempts to match physicians and patients during data collection.

In conclusion, this study was not able to provide support for the ability of the congruence between PCC and the independent variables to predict physician job satisfaction and patient satisfaction. In physician analyses that included four different independent variables and four interaction terms, only collaboration and prior-PCC experience can significantly provide an explanation for the variance in physician job satisfaction. The results from the patient analyses, that include four independent variables and four interaction terms, provided better results than

the physician study. PCC, existential value and functional value are positively related to patient satisfaction. However, the interaction terms are not significant, indicating that the relationship between job satisfaction and the independent variables are not affected by PCC. This study has provided an important initial step in determining the role of a culture fit in hospitals.

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APPENDIX A: QUESTIONNAIRES FOR PARTICIPANTS OF THE SURVEY

Patient-Centered Care Survey—Physician Version

Research title: The Impact of Patient-Centered Care on Physician Satisfaction: Do Professional Culture and Patient Culture Matter?

Purpose of the research: Nowadays, there is a high competition in healthcare industry. In order to attract healthcare consumers, patient satisfaction has become vital as it is considered as one of the determinants of healthcare quality and patients' decisions for future visits. Thus, both public and private hospitals began to adopt practices that can increase patient satisfaction including patient-centered care. Patient-centered care is a practice that facilitates a collaboration between healthcare professionals and patients to ensure that treatment decisions are corresponding to patient needs by providing them with information and promoting their involvement in decision making regarding their health and illness. This research is intended to better understand the relationship between patient-centered care, physician job satisfaction, and patient satisfaction.

This study is required in partial fulfilment toward the degree of Doctor of Philosophy in Human Resources and Industrial Relations, School of Labor and Employment Relations, University of Illinois at Urbana-Champaign.

What you will do in this research: As a participant, you will be asked to complete the survey that includes four parts. Part A will involve several statements regarding physician values. You will be asked to rate your agreement on each statement. Part B will include different statement concerning your experience with patient-centered care. You will be asked to rate the frequency of each statement. Part C concerns your satisfaction with different statement. You will be asked how satisfied you are with these statements. Part D contains general information about participants.

Time required: Participation will take approximately 15 to 20 minutes of your time.

Voluntary consent: Your participation is voluntary. If you feel uncomfortable answering any question, you have the right not to answer or leave the study at any time. All information you provide is considered confidential; your name will not be included or, in any other way associated with the data collected in the study. Furthermore, because our interest is the aggregate results of the entire group of participants, you will not be identified individually in any way in written reports of this research.

PART A: Consider your physician profession, please rate following statements based on your agreement.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1. I try to make decision for patients regarding their health and illness.	☐	☐	☐	☐	☐
2. I treat patients as I wanted, regardless of the opinions of the others	☐	☐	☐	☐	☐
3. I disregard rules and regulations that hamper my personal freedom in treating patients.	☐	☐	☐	☐	☐
4. I consider myself a "team player" at work.	☐	☐	☐	☐	☐
5. I try my best to work alone during patient care.	☐	☐	☐	☐	☐
6. I cooperate with other physician in making decisions about patient care	☐	☐	☐	☐	☐
7. I share responsibility for decisions made about patient care	☐	☐	☐	☐	☐
8. I trust in the other's decision making ability in making shared decisions about patient care	☐	☐	☐	☐	☐
9. I respect the other's knowledge and skills in making shared decisions about patient care	☐	☐	☐	☐	☐
10. I collaborate in making shared decisions about patient care	☐	☐	☐	☐	☐

PART B: Consider your work experience at this hospital, please rate your agreement of the following statement.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
11. You have discussed patient's main problem today.	☐	☐	☐	☐	☐
12. You know that this was one of the reasons for patient to come in today.	☐	☐	☐	☐	☐
13. You understand the important of patient's reason for coming in today.	☐	☐	☐	☐	☐
14. You understood your patient today.	☐	☐	☐	☐	☐
15. Patient is satisfied with the discussion of his or her problem.	☐	☐	☐	☐	☐
16. You have explained the problem to your patient.	☐	☐	☐	☐	☐

17. Your patient agrees with your opinion about the problem.	☐	☐	☐	☐	☐
18. You provide opportunities for patients to ask questions.	☐	☐	☐	☐	☐
19. You have asked about patient's goals for treatment.	☐	☐	☐	☐	☐
20. You have explained treatment to your patient.	☐	☐	☐	☐	☐
21. You have explored how manageable this (treatment) would be for your patient.	☐	☐	☐	☐	☐
22. You and your patient have discussed patient's respective roles (Who is responsible for making decisions and who is responsible for what aspects of patient care?)	☐	☐	☐	☐	☐
23. You have encouraged your patient to take the role he or she wanted in his or her own care.	☐	☐	☐	☐	☐
24. You care about your patient as a person.	☐	☐	☐	☐	☐

PART C: Consider your experience with patients while you attend the medical school, residency program, fellowship program, or training, please rate your level of frequency with the following statements.

	Never	Rarely	Sometimes	Very often	Always
25. Interacting with patients	☐	☐	☐	☐	☐
26. Attempting to understand patient needs and preferences	☐	☐	☐	☐	☐
27. Providing information to patients regarding patients' health and illness	☐	☐	☐	☐	☐
28. Involving patient in decision making process regarding patients' health and illness	☐	☐	☐	☐	☐
29. Encouraging patients to make decisions regarding their health and illness	☐	☐	☐	☐	☐

PART D: This section inquires about your satisfaction as a physician at the hospital you are currently associated with.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
30. I find my work personally rewarding.	☐	☐	☐	☐	☐
31. Overall, my career has met my personal expectations.	☐	☐	☐	☐	☐
32. All things considered, I am satisfied with my career as a physician.	☐	☐	☐	☐	☐
33. If I were to choose a career again, I would never become a physician.	☐	☐	☐	☐	☐
34. The gratitude display by my patients keeps me going.	☐	☐	☐	☐	☐
35. I feel a strong personal relationship with my patients.	☐	☐	☐	☐	☐
36. My total compensation package is fair.	☐	☐	☐	☐	☐
37. My colleagues within the same hospital unit are a source of professional stimulation.	☐	☐	☐	☐	☐
38. My colleagues with the same hospital unit are an important source of personal support.	☐	☐	☐	☐	☐
39. My colleagues from other hospital units value my unique perspective in practice.	☐	☐	☐	☐	☐
40. I get along well with colleagues from other hospital units.	☐	☐	☐	☐	☐

PART E: Please answer the following questions concerning your demography.

41. AGE

☐ 18-30 ☐ 31-40 ☐ 41-50
☐ 51-60 ☐ 61 and over

42. SEX

☐ Male ☐ Female

43. What is the highest grade or level of school that you have completed?

- ☐ Six-year medical school
- ☐ Residency
- ☐ Fellowship
- ☐ Other (i.e. medical certifications) _____

44. How would you describe your current employment status?

- ☐ Employed full time
- ☐ Employed part time

45. Which primary hospital department are you associated with?

- ☐ Allergy center
- ☐ Breast center
- ☐ Orthopedic center
- ☐ Dermatology clinic
- ☐ Ear, nose, and throat clinic
- ☐ Wellness center
- ☐ Eye clinic
- ☐ Emergency
- ☐ Diabetes program
- ☐ Heart institute
- ☐ Hemodialysis
- ☐ Surgery clinic
- ☐ Internal medicine
- ☐ Liver and digestive center
- ☐ Women's health center
- ☐ Medical check up
- ☐ Neurology
- ☐ Urology
- ☐ Pediatrics
- ☐ Oncology clinic
- ☐ Radiology
- ☐ Physical care and rehabilitation clinic
- ☐ Pulmonary center
- ☐ Others _____

46. Which secondary hospital department are you associated with?

- ☐ Allergy center
- ☐ Breast center
- ☐ Orthopedic center
- ☐ Dermatology clinic
- ☐ Ear, nose, and throat clinic
- ☐ Wellness center
- ☐ Eye clinic
- ☐ Emergency
- ☐ Diabetes program
- ☐ Heart institute
- ☐ Hemodialysis
- ☐ Surgery clinic
- ☐ Internal medicine
- ☐ Liver and digestive center
- ☐ Women's health center
- ☐ Medical check up
- ☐ Neurology
- ☐ Urology
- ☐ Pediatrics
- ☐ Oncology clinic
- ☐ Radiology
- ☐ Physical care and rehabilitation clinic
- ☐ Pulmonary center
- ☐ Others _____

47. What is your annual income (Thai Baht)?

- ☐ 30,000-39,999
- ☐ 40,000-49,999
- ☐ 50,000-59,999
- ☐ 60,000-69,999
- ☐ 70,000-79,999
- ☐ 80,000-89,999
- ☐ 90,000-99,999
- ☐ 100,000-149,999
- ☐ 150,000-199,999
- ☐ More than 200,000

Patient-Centered Care Survey—Patient Version

Research title: The Impact of Patient-Centered Care on Physician Satisfaction: Do Professional Culture and Patient Culture Matter?)

Purpose of the research: The purpose of this study is to better understand the relationship between patient-centered care culture, job satisfaction, and patient satisfaction.

What you will do in this research: As a participant, you will be asked to complete the survey that includes four parts. Part A and Part B involve several statements regarding to your hospital visit today with the focus on the meeting with your physician. You will be asked to rate your agreement on each statement. Part C concerns about your decision to visit the hospital. You will be asked to rate the importance of each statement. Part D asks about your satisfaction with different statement. Part E will ask in general about your hospital visit today. Part F contains general information about participants.

Time required: Participation will take approximately 15 minutes of your time.

Voluntary consent: Your participation is voluntary. All information you provide is considered confidential; your name will not be included or, in any other way associated with the data collected in the study. Furthermore, because our interest is the aggregate results of the entire group of participants, you will not be identified individually in any way in written reports of this research.

PART A: Consider your experience with the hospital visit today, please rate your agreement of the following statement.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1. Your main problem has been discussed today.	☐	☐	☐	☐	☐
2. Your physician knows that this was one of your reasons for coming in today.	☐	☐	☐	☐	☐
3. Your physician understands the important of your reason for coming in today.	☐	☐	☐	☐	☐
4. Your physician understood you today.	☐	☐	☐	☐	☐
5. You are satisfied with the discussion of your problem.	☐	☐	☐	☐	☐
6. Your physician has explained the problem to you.	☐	☐	☐	☐	☐
7. You agree with the physician's opinion about the problem.	☐	☐	☐	☐	☐

8. You have opportunities to ask your questions.	☐	☐	☐	☐	☐
9. Your physician has asked about your goals for treatment.	☐	☐	☐	☐	☐
10. Your physician has explained treatment to you.	☐	☐	☐	☐	☐
11. Your physician has explored how manageable this (treatment) would be for you.	☐	☐	☐	☐	☐
12. You and your physician have discussed your respective roles (Who is responsible for making decisions and who is responsible for what aspects of your care?)	☐	☐	☐	☐	☐
13. Your physician has encouraged you to take the role you wanted in your own care.	☐	☐	☐	☐	☐
14. Your physician cares about you as a person.	☐	☐	☐	☐	☐

PART B: Please think about the doctor that you usually go to when you are sick or need advice about your health and indicate how much you agree or disagree with each statement.

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
15. When there is more than one method to treat a problem, I should be told about each one.	☐	☐	☐	☐	☐
16. I believe that my doctor needs to know everything about my medical history to take good care of me.	☐	☐	☐	☐	☐
17. I would rather have my doctor make decisions about what's best for my health than to be given a whole lot of choices.	☐	☐	☐	☐	☐
18. The important medical decisions should be made by my doctor, not by me.	☐	☐	☐	☐	☐

PART C: Consider your experience with the hospital visits, please rate how important are the following statements to you?

	Not important	Slightly important	Moderately important	Important	Extremely important
19. Physician visit when you feel the need for medical care	☐	☐	☐	☐	☐
20. Regular medical checkup with physicians	☐	☐	☐	☐	☐
21. Private discussions with the physicians	☐	☐	☐	☐	☐
22. Participation in discussions with the physicians	☐	☐	☐	☐	☐
23. Information from physicians regarding your health and illness	☐	☐	☐	☐	☐
24. Clarity of physicians' information regarding your health and illness	☐	☐	☐	☐	☐
25. Interpersonal relationship with physicians	☐	☐	☐	☐	☐
26. Trust relationship with the physicians	☐	☐	☐	☐	☐
27. Physicians' competency	☐	☐	☐	☐	☐
28. Time spent for physician visit(reverse)	☐	☐	☐	☐	☐
29. Collaboration in making shared decisions about patient care	☐	☐	☐	☐	☐

PART D: This section will inquire you about how satisfied are you with your hospital visit. How satisfied were you with the following:

	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
30. Personal attention of doctors	☐	☐	☐	☐	☐
31. The expertise of doctors	☐	☐	☐	☐	☐
32. The clarity of information given by doctors	☐	☐	☐	☐	☐
33. The way information was transferred from one person to another	☐	☐	☐	☐	☐
34. The degree of encouragement to be self –sufficient	☐	☐	☐	☐	☐

35. The degree to which you could participate in treatment decisions	☐	☐	☐	☐	☐
36. The information provided about further treatment	☐	☐	☐	☐	☐
37. Departmental visit	☐	☐	☐	☐	☐
38. Hospital visit	☐	☐	☐	☐	☐

PART E: This section concerns your opinion about your hospital visit today. Please check the response that best represents your opinion.

39. Using any number from 0 to 10, where 0 is the worst department possible and 10 is the best department possible, what number would you use to rate this department during your stay?

Worst department possible----------→Best Department possible

0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

40. Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best possible, what number would you use to rate this hospital during your stay?

Worst hospital possible----------→Best hospital possible

0	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

PART F: Please answer the following demographic questions.

41. AGE

☐ 18-30 ☐ 31-40 ☐ 41-50
☐ 51-60 ☐ 61 and over

42. SEX

☐ Male ☐ Female

43. What is the highest grade or level of school that you have completed?

☐ < Bachelor's degree ☐ Bachelor's degree
☐ > Bachelor's degree ☐ Other_____

44. How would you describe your current employment status?

☐ Employed full time for wages
☐ Employed part time for wages
☐ Self-employed

45. Which hospital department have you visited today?

☐ Allergy center	☐ Breast center	☐ Orthopedic center
☐ Dermatology clinic	☐ Ear, nose, and throat clinic	☐ Wellness center
☐ Eye clinic	☐ Emergency	☐ Diabetes program
☐ Heart institute	☐ Hemodialysis	☐ Surgery clinic
☐ Internal medicine	☐ Liver and digestive center	☐ Women's health center
☐ Medical check up	☐ Neurology	☐ Urology
☐ Pediatrics	☐ Oncology clinic	☐ Radiology
☐ Physical care and rehabilitation clinic	☐ Pulmonary center	☐ Others _____

46. What is the purpose of your hospital visit today?

☐ Routine care ☐ Follow-up visit
☐ Urgent care ☐ Other_____

47. What is your current health status?

☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor

48. Do you have any medical problem?

☐ Yes ☐ No

49. What is your annual income (Baht)?

- ☐ Less than 10,000
- ☐ 10,000-19,999
- ☐ 20,000-29,999
- ☐ 30,000-39,000
- ☐ 40,000-49,000
- ☐ 50,000-74,999
- ☐ 75,000-99,999
- ☐ 100,000-150,000
- ☐ More than 150,000

APPENDIX B: IRB APPROVAL

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Office of Vice Chancellor for Research

Institutional Review Board
528 East Green Street
Suite 203
Champaign, IL 61820

April 13, 2015

Joel Cutcher-Gershenfeld
School of Labor and Employment Relations
Room 249
504 E. Armory
Labor & Industrial Relations
UIUC Campus Mail,
M/C 504

RE: *The Impact of Patient-Centered Care on Physician Satisfaction: Do Professional Culture and Patient Culture Matter?*
IRB Protocol Number: 15562

EXPIRATION DATE: April 12, 2018

Dear Dr. Cutcher-Gershenfeld:

Thank you for submitting the completed IRB application form for your project entitled *The Impact of Patient-Centered Care on Physician Satisfaction: Do Professional Culture and Patient Culture Matter?* Your project was assigned Institutional Review Board (IRB) Protocol Number 15562 and reviewed. It has been determined that the research activities described in this application meet the criteria for exemption at 45CFR46.101(b)(2).

This determination of exemption only applies to the research study as submitted. Please note that additional modifications to your project need to be submitted to the IRB for review and exemption determination or approval before the modifications are initiated.

We appreciate your conscientious adherence to the requirements of human subjects research. If you have any questions about the IRB process, or if you need assistance at any time, please feel free to contact me or the IRB Office, or visit our website at http://www.irb.illinois.edu.

Sincerely,

Dustin L. Yocum, Human Subjects Research Exempt Specialist, Institutional Review Board

c: Saengdow Prasittisuk

telephone (217) 333-2670 • *fax* (217) 333-0405 • *email* IRB@illinois.edu

APPENDIX C: LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
ASV	Average Shared Variance
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
CLF	Common Latent Factor
GFI	Goodness of Fit Index
IOM	Institute of Medicine
I-PCC	Individual-Level Patient-Centered Care
MSV	Maximum Shared Variance
NSO	National Statistical Office of Thailand
PCC	Patient-Centered Care
RMSEA	Root Mean Square Effort of Approximation
TLI	Tucker-Lewis Index
U-PCC	Unit-Level Patient-Centered Care